Pacific
Salmon
Commission

PACIFIC SALMON COMMISSION

2013/2014
Twenty Ninth Annual
Report

In Memoriam

Larry Rutter

Larry Rutter was a fixture in Pacific salmon conservation and management for more than three decades until his untimely death in 2014. It is difficult to describe fully the impact Larry's work had on the institutions and people involved with this valuable resource. From the early 1970's until 1997, he worked for and with the Treaty Indian Tribes of the U.S. Pacific Northwest to advance their interests and ideas as salmon co-managers. From 1997 until his passing, Larry worked for the National Marine Fisheries Service on salmon issues ranging from Endangered Species Act listings to Pacific Salmon Treaty negotiations. He served the last 12 years of that career as the U.S. Federal Commissioner to the Pacific Salmon Commission, as well as a "founding member" of the Southern Boundary Restoration and Enhancement Fund (Southern Fund) Committee. Near the end of his career, Larry was convinced that substantial, multi-year funding was needed to study early marine survival of salmon stocks utilizing the Salish Sea. This led to a $5 million, five-year commitment from the Southern Fund for the bilateral Salish Sea Marine Survival Project.

In short, Larry was a major influence in how the Tribes, the United States, and Canada approached salmon management and research during the turn of the 21st century. The Pacific Salmon Commission dedicates its 29th Annual Report to Larry's memory and enduring legacy.

Pacific Salmon Commission

Established by Treaty between Canada and the United States March 18, 1985 for the conservation, management and optimum production of Pacific salmon

Twenty Ninth Annual Report 2013/2014

Vancouver, B.C.
Canada

November 2016

PACIFIC SALMON COMMISSION

ESTABLISHED BY TREATY BETWEEN CANADA
AND THE UNITED STATES OF AMERICA
MARCH 18, 1985

600 – 1155 ROBSON STREET
VANCOUVER, B.C. V6E 1B5
TELEPHONE: (604) 684-8081
FAX: (604) 666-8707

Our File:

Your File:

Letter of Transmittal

In compliance with Article II, Paragraph 14 of the Treaty between the Government of Canada and the Government of the United States of America concerning Pacific salmon (the Treaty), it is my pleasure as Executive Secretary of the Pacific Salmon Commission to present my compliments to the Parties and to transmit the Twenty Eighth Annual Report of the Commission.

This report summarizes the activities of the Commission for the fiscal year April 1, 2013 to March 31, 2014. It reports on the results of the 2013 fishing season and on meetings of the Commission and its subsidiary bodies. Also included are the annual reports of the Northern and Southern Fund Committees, and an independent auditor's report on financial activities of the Commission during the fiscal year April 1, 2013 to March 31, 2014.

Additional details about the Commission's activities and the Treaty are available at www.psc.org.

Sincerely,

John Field

Mr. John Field
Executive Secretary

PACIFIC SALMON COMMISSION

OFFICERS for 2013/2014

Chair	Mr. Robert Turner (Mr. Larry Rutter until December 4, 2013)
Vice-Chair	Ms. Susan Farlinger

COMMISSIONERS

Canada	United States
Mr. John McCulloch	Mr. Ron Allen
Mr. Murray Ned	Mr. Phil Anderson
Mr. Bob Rezansoff	Mr. David Bedford
Mr. Brian Assu	Mr. William Auger
Mr. Paul Macgillivray	Mr. Mike Clark
Dr. Brian Riddell	Mr. Roy Elicker
Mr. Paul Sprout	Mr. McCoy Oatman

SECRETARIAT STAFF

Executive Secretary	Mr. John Field
Administrative Officer	Ms. Ilinca Manisali
Chief Biologist	Mr. Mike Lapointe

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INTRODUCTION

Since the early 20th century, Canada and the United States have discussed and collaborated on Pacific salmon conservation and management. Interception of Pacific salmon bound for rivers of one country in fisheries of the other has been a particularly important issue over the years. Scientific research identified a number of intercepting fisheries on species and stocks originating from Alaska, British Columbia, Washington, Oregon and Idaho. This research indicated that Alaskan fishers were catching some of the salmon bound for British Columbia, Idaho, Oregon and Washington. Canadian fishers off the West Coast of Vancouver Island were capturing some of the salmon bound for rivers of Washington and Oregon, while fishers in northern British Columbia were intercepting certain fish returning to Alaska, Washington, Oregon and Idaho. U.S. fishers were catching Fraser River salmon as they traveled through the Strait of Juan de Fuca and the San Juan Islands towards the Fraser River.

Cooperative management of stocks subject to interception became a matter of common concern to Canada and the United States, and governments desired a mechanism to enable each country to reap the benefits of its respective management and enhancement efforts. That mechanism is now provided through the *Treaty Between the Government of Canada and the Government of the United States of American Concerning Pacific Salmon* (hereafter the "Pacific Salmon Treaty" or "the Treaty"), which entered into force upon the exchange of instruments of ratification by the President of the United States of America and the Prime Minister of Canada on March 18, 1985.

The treaty, *inter alia*, established a) a bilateral fishery management organization known as the Pacific Salmon Commission (the Commission), and b) bilateral fishery management regimes for conservation and harvest sharing of salmon stocks. Each country (Party) retains jurisdictional management authority but must manage its fisheries in a manner consistent with the provisions of the Treaty. The Treaty is intended to enable bilateral conservation and enhancement to prevent overfishing, increase production, and ensure that each country receives benefits equivalent to its own salmon production. The Commission also serves as a forum for consultation between the Parties on their salmonid enhancement operations and research programs.

The Commission comprises four Commissioners (and alternates) from each country as the principle deliberative body. The Commission has also established numerous subsidiary committees, and four geographically oriented panels. The Panels report to the Commission and provide advice on the conservation and management of selected stocks of concern, with certain exceptions as noted below:

> Transboundary Panel: stocks originating from the Alsek, Stikine and Taku River systems.
>
> Northern Panel: stocks originating in rivers situated between Cape Suckling in Alaska and Cape Caution in British Columbia.
>
> Southern Panel: stocks originating in rivers located south of Cape Caution, other than Fraser River sockeye and pink salmon.
>
> Fraser River Panel: has special in-season regulatory responsibilities for stocks of sockeye and pink salmon originating from the Fraser River.
>
> Yukon River Panel: makes recommendations to authorities in Alaska and the Canadian government concerning the conservation and coordinated management of salmon originating in the Yukon River in Canada, but does not report to the Commission.

The panels review annual post-season reports, annual pre-season fishing plans and ongoing and planned salmonid enhancement programs of each country. They also provide recommendations to the Commission for development of fishery regimes in accordance with the objectives of the Treaty. These regimes, once adopted by the Commission and accepted by the Parties, are implemented by the relevant fishery management agencies in each country.

The Parties accord the Fraser River Panel special responsibility for in-season regulation of Fraser River sockeye and pink fisheries of Canada and the United States in southern British Columbia and northern Puget Sound, in an area designated as Fraser River Panel Area Waters. Scientific and technical work is conducted for the Panel by the Fishery Management Division of the Commission's Secretariat staff.

With long-term fishery arrangements in place through periodic amendment of the Treaty, the meeting agendas for the Commission have concentrated on implementation that will improve fisheries management and aid the countries' efforts to recover weakened stocks. These provisions include establishment of two bilaterally-managed restoration and enhancement funds, provisions to enhance bilateral cooperation, and improvements to the scientific basis for salmon management.

The Commission generally meets three times annually and conducts its business between meetings through its permanent Secretariat located in Vancouver, British Columbia. In the period April 1, 2013 to March 31, 2014, the Commission met on three occasions:

1. Commission Executive Session
   May 1, 2013 – via Teleconference

2. Fall Session
   October 22-24, 2013 – Ketchikan, Alaska

3. Post-Season Meeting of the Commission and Panels
   January 13-17, 2014 – Portland, Oregon

4. Twenty-Ninth Annual Meeting of the Commission
   February 10-14, 2014 – Vancouver, B.C.

This, the Twenty-Ninth Annual Report of the Pacific Salmon Commission, provides a synopsis of the activities of the Commission and its subsidiary bodies during its Twenty-ninth fiscal year of operation, April 1, 2013 to March 31, 2014.

Activities of the Commission

PART I
ACTIVITIES OF THE COMMISSION

A. EXECUTIVE SESSION
May 1, 2013, via Teleconference

The Commission met via teleconference on May 1, 2013 to discuss the renewal of the Fraser River Chapter (Treaty Annex IV, Chapter 4) and other business.

It was noted that the Commission had approved a draft of Chapter 4 at its 28th Annual Meeting (February 2013) for use in domestic consultations. These consultations had concluded and neither Party had changes to offer on the draft text.

The Commission adopted the April 2nd, 2013 version of the text amending Annex IV, Chapter 4 and agreed that the amended Chapter would be transmitted to the Parties for consideration.

Under other business, the Canadian section noted that it had confirmed or re-confirmed the appointment of Brian Assu, John McCulloch, Murray Ned, and Brian Riddell as Commissioners.

B. FALL SESSION OF THE PACIFIC SALMON COMMISSION
October 22-24, 2013, Ketchikan, Alaska

The Commission met in bilateral session four times during the week.

Newly appointed Canadian Commissioners John McCulloch and Murray Ned were welcomed to the Commission table.

Executive Secretary John Field reported that the Secretariat organized a celebration that marked a century of cooperation between Canada, the United States, Canadian First Nations and U.S. Tribes in managing and conserving Fraser River salmon. The centennial celebration, held at Hell's Gate, B.C. on August 22, 2013 was a success; a video and photographs taken at the event were available on the Pacific Salmon Commission website.

Dr. Riddell reported on the progress of the Fraser Strategic Review Committee (FSRC). The Committee was charged with reviewing and examining the benefits of two hydroacoustic facilities: one operated by Fisheries and Oceans Canada, near Qualark, B.C. and one near Mission, B.C. operated by the Pacific Salmon Commission Secretariat. The Commission agreed that the FSRC would meet with the Fraser River Panel, the Fraser River Technical Committee, and experts on riverine hydroacoustics at the January 2014 Commission meeting to further discuss the review of the hydroacoustic programs.

The Commission considered whether detailed minutes of its meetings should be posted on the PSC website or if a different approach should be taken to make the records of Commission meetings available to the public. The Commission agreed that past and future minutes of Commission meetings not held in executive session would be made available to the public upon request, and all meeting summaries would continue to be posted on the Commission website. Minutes of the International Pacific Salmon Fisheries Commission would remain unavailable for public distribution consistent with IPSFC practice.

The Commission received an update about the ongoing bylaws review process. Mr. Field reported that a document outlining proposed by-law revisions was prepared by the Administrative Working Group and was distributed to the Commission in September 2013. Because there were numerous proposed bylaw revisions in the document, the Commission agreed that the Administrative Working Group would highlight amendments that represented substantive changes from existing bylaws. The Commission would further discuss the proposed bylaw revisions at the January 2014 post-season meeting.

The Commission heard a report from the Chinook Interface Group (CIG) about the Chinook Technical Committee's draft workplan. The Commission agreed to accept the recommendation from the Chinook Interface Group (CIG) regarding Chinook Technical Committee (CTC) work plan priorities, and would instruct the CTC to a) complete Tasks 1[1] and 2[2] by the fall of 2014 and b) address other tasks as long this did not impede completion of the first two. The Commission noted that the five-year review of the Chinook conservation program articulated in Annex IV, Chapter 3 would not be completed on schedule.

The Commission discussed the operational plan for the PSC Secretariat presented by Mr. Field.

The plan focused on three major aspects of the Secretariat's business operations: personnel succession planning, infrastructure modernization, and Commission operations (which included meeting schedules and outreach). The Commission discussed the possible development of a PSC Strategic plan and agreed to establish an Interim Advisory Committee to identify questions and issues for the Commission to consider beginning in February 2014.

The Commission discussed how to best fulfill its obligations under the Pacific Salmon Treaty in the face of budgetary constraints faced by both Parties. The Commission agreed to send correspondence to Panel and Committee chairs, directing them to identify near-term reductions in meeting schedules that would generate savings for the National Sections, while not impeding work plan completion.

The Commission discussed and approved the work plans submitted by the Commission Panels and Committees, noting that work plans might be modified in conjunction with near-term meeting reductions.

It was noted that the Habitat and Restoration Technical Committee (HRTC) submitted a work plan in October 2012 that was not approved by the Commission and that the Committee did not submit a work plan for 2013/2014. The Commission agreed to discuss the future of the HRTC at the January 2014 Commission session.

The Pacific Salmon Commission Slate of Officers for 2013/2014 was tabled and approved.

C. MEETING OF THE COMMISSION AND PANELS
January 13-14, 2014, Portland, Oregon

The Commission held three bilateral sittings during the meeting.

The Commission welcomed newly appointed U.S. Commissioner Mr. Bob Turner to the Commission table. Mr. Tuner previously served on the Pacific Salmon Commission in a number of roles from 1986 to 1997.

Mr. Field reported that the Commission established several "special issue" working groups in 2013 to address various aspects of its response to the External Performance Review. He summarized the status of each group and timelines for completing their work, as part of a new annual review of such bodies within the Commission.

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[1] Task 1: completion of the Catch and Escapement Annual Report and of the Calibration and Exploitation Rate Annual Report

[2] Task 2: Model Improvements

The Working Group charged with reviewing the PSC bylaws proposed a substantial number of bylaw amendments in September 2013. At the October 2013 Fall Meeting the Commission directed the Working Group to highlight proposed amendments that were substantive. Because the Finance and Administration (F&A) Committee was carrying out an intensive review of financial and staff regulations and the Canadian Section was also reviewing the bylaws, the Working Group planned to present its final report to the PSC in February 2014 when the Commission would receive one comprehensive report about proposed bylaw revisions.

Mr. Scott McPherson and Dr. Arlene Tomkins, co-chairs of the Coded Wire Tag Implementation Team (CWTIT) appeared before the Commission and delivered the "Progress Report for Projects funded through the PSC Coded Wire Tag Improvements Program, 2009-2013". CWTIT planned to complete a final report by February 2015 that would synthesize and document the results of CWTIT's five years in operation. The report would be published as part of the PSC Technical Report Series.

Dr. Dave Bernard and Mr. Chuck Parken, co-chairs of the Sentinel Stocks Committee (SSC) appeared before the Commission and delivered a summary report about the accomplishments of the Sentinel Stocks Program from 2009-2013.

The co-chairs of the Chinook Technical Committee, CWTIT, Sentinel Stocks Committee, Coho Technical Committee, Selective Fishery Evaluation Committee, Data Sharing Committee, Transboundary Technical Committee and Northern Boundary Technical Committee delivered a joint memorandum to the Pacific Salmon Commission that addressed impending financial pressures that would seriously erode the capacity of management agencies to provide the base level of data necessary to manage chinook and coho salmon under PSC fishery regimes. The memorandum highlighted specific funding pressures, including the impending conclusion of funding under the CWTIT and SSP processes, and recommended that the Commission create a multi-technical committee process that could be used to identify and set program priorities for agencies, for the Endowment Fund Committees, for the LOA process, and for external groups to deliver programs to help maximize results.

The Commission agreed that the Chinook Interface Group would meet via teleconference to address the concerns raised in the memorandum in the near-term and that the Canadian Section would draft written instructions to the Joint Technical Committee (JTC) co-chairs regarding the issues raised in the memorandum. The U.S. Section would review the draft and a bilateral assignment would be conveyed to the JTC co-chairs when appropriate.

Mr. Sprout reported that the Interim Advisory Committee (IAC), formed at the October 2013 Commission meeting as part of the process to develop a strategic plan, had met to try to clarify its mandate. Canada agreed to develop a paper that would set out a description of a strategic plan and its components. The paper would be the starting point for the IAC to discuss the strategic plan in February and to set out a process for completing the assignment.

Dr. Riddell reported that the Fraser Strategic Review Committee (FSRC) met with a small group of Fraser Panel and Fraser River Technical Committee members during the week to inform them about what the FSRC process would entail. The FRSC's focus had moved from discussing the relative merits of the two hydroacoustic sites used to manage Fraser River salmon in-season, one at Mission B.C. and one at Qualark B.C., to discussing how to integrate the programs and optimize existing facilities.

The Fraser Panel Chair and Vice Chair developed instructions to the Fraser Panel as part of the Fraser Strategic Review Committee (FSRC) process. The instructions took the form of a list of questions about how the hydroacoustic programs at Mission and Qualark were used by the Panel to manage the Fraser River fishery.

The Commission agreed that the hydroacoustic programs at Mission and Qualark would continue to operate as usual in 2014 but the Commission encouraged the Fraser River Panel, the PSC Secretariat, and Fisheries and Oceans Canada to exchange information about both programs during the 2014 season.

The Commission discussed the status of the Habitat and Restoration Committee (HRTC) work plan. The Commission agreed that there would not be an approved work plan for the Habitat and Restoration Technical Committee in 2013/2014. Canada would receive reports from the United States in the near term regarding habitat issues under Attachment E to the 1999 Agreement between the Parties, and a bilateral discussion about how to proceed regarding habitat would be held in February 2014.

The Parties tabled their Post-Season Fishing reports.

D. PACIFIC SALMON COMMISSION ANNUAL MEETING
February 10-14, 2014, Vancouver, B.C.

Three bilateral Commission sessions were held during the week.

The Commission discussed follow-up steps to the January 2014 memorandum from the Joint Technical Committee (JTC) co-chairs regarding funding constraints and program delivery. At its January 2014 meeting, the Commission had agreed that a) the Chinook Interface Group would convene intersessionally to consider the issues at hand; and b) the Canadian section would draft responsive instructions to the JTC co-chairs.

The Chinook Interface Group (CIG) considered funding cessation for the Coded Wire Tag Improvement Program, the Sentinel Stocks Program, and chinook model improvements. The CIG proposed that the Commission direct the JTC co-chairs to assemble a list of activities that would be impacted by the loss of funding and to prioritize those activities so that the Commission could understand, from a technical perspective, which were the most important. The Commission required this information so that it could make the best use of any additional funds.

The Commission discussed next steps on habitat issues. In January 2014, the U.S. Section proposed that by transmitting reports on habitat to Canada, the United States would fulfill its obligation under Attachment E (Habitat and Restoration) of the Pacific Salmon Treaty. Canada confirmed that it received the reports. The Canadian Section was working to determine which habitat reports it would bring forward on Canada's behalf. The Commission also confirmed that the Executive Secretary sent a letter to members of the Habitat and Restoration Technical Committee (HRTC) indicating that the Commission did not foresee an approved HRTC workplan for 2013/2014.

The Commission received and approved the report of the Standing Committee on Finance and Administration, including the Secretariat budget for the fiscal year 2014/2015.

The Commission discussed the PSC Secretariat's administration of non-Fraser River Panel related test-fisheries in 2013. The Commission approved the Canadian proposal to extend the Secretariat's administration of various test fisheries in 2014 under the same conditions as 2013, with the program divided into 2 categories: Panel-approved Fraser sockeye test fisheries and other test fisheries. The Commission agreed that the Secretariat would consult with Canadian personnel to evaluate test-fishing operations in 2014 and would report back to the Commission in early 2015.

Commissioner Paul Sprout reported on behalf of the Interim Advisory Committee (IAC), which the Commission tasked with determining what would be included in a PSC strategic plan. The IAC discussed a paper prepared by Canada that described a potential table of contents for a strategic plan and outlined how a strategic plan might be focused around specific objectives, goals, and activities. The IAC planned to table a recommendation about the development of a strategic plan at the October 2014 Commission Fall Meeting.

Executive Secretary John Field delivered a report from the Outreach and Transparency Working Group, which was formed in response to the 2012 external performance review recommendations on the Commission's outreach efforts, orientation processes, and the PSC website. Since December 2013, the Working Group had launched three major projects. It was developing a plan to update the PSC website, was exploring the development of a communications plan, and was compiling orientation materials for new PSC delegates and staff.

Mr. Field provided an update about the PSC bylaws review process. In February 2013 the Commission formed the Bylaws Review Working Group, which tabled its initial report at the October 2013 meeting. At that time, the Commission directed the Working Group to highlight substantive proposed bylaw revisions for Commission review. In January 2014 the Commission learned that the F&A Committee was looking more deeply at PSC staffing and financial regulations. In addition, the F&A Committee received a set of edits to the whole suite of bylaws from the Canadian Section in January, but had not yet had the opportunity to discuss these edits. The working group, with input from the F&A Committee, hoped to provide a complete set of proposed bylaw amendments to the Commission at the October 2014 meeting.

Mr. Angus Mackay, Endowment Fund Coordinator, delivered the "Annual Report of the Southern Boundary and Enhancement Fund and the Northern Boundary and Transboundary Rivers Restoration and Enhancement Fund for the year 2013."

Selective Fishery Evaluation Committee (SFEC) co-chairs Dr. Gary Morishima and Mr. Rob Houtman appeared before the Commission and presented a report on behalf of the Committee. SFEC was concerned about the increasing complexity of Mark Selective Fishery (MSF) proposals, which raised the costs of catch monitoring, sampling, and catch reporting and made it more difficult for SFEC to estimate the impacts of MSFs on natural stocks. The Committee was developing colour-coded summary tables that would indicate its level of concern about various aspects of individual MSF proposals. The Committee planned to have a draft of a "lessons learned" document ready for bilateral review in early spring.

Former Canadian Commissioner Paul Macgillivray appeared before the Commission. The Commission thanked Mr. Macgillivray for his contributions to the Commission process and presented him with a commemorative plaque in recognition of his service to the PSC.

Activities of the Standing Committees

PART II
ACTIVITIES OF THE STANDING COMMITTEES

A. MEETINGS OF THE STANDING COMMITTEE ON FINANCE AND ADMINISTRATION

The Standing Committee on Finance and Administration met on several occasions in December 2013 and the 2014 Post-Season and Annual Meetings. The Committee addressed a number of issues and made recommendations for the Commission's consideration as noted below.

Budget proposal for FY2014/2015 and forecast for FY2015/2016

The Committee discussed the financial challenges facing the Commission and the Secretariat over the coming years. The Secretariat has worked with the Committee to constrain expenditures and find efficiencies in operations to yield a surplus in the coming fiscal year and a forecast balanced budget in FY2015/2016.

Accordingly, the Committee recommends that the Commission adopt the proposed budget for FY2014/2015 as shown in Appendix D. The forecast budget for FY2015/2016 in Table 1 requires no action from the Commission at this time, and is provided for information purposes. The Committee highlights the following aspects of the FY2014/2015 proposal:

1. DIDSON lease costs: The Secretariat currently owns three DIDSON units that are deployed at the Mission hydroacoustic site. In an effort to improve the precision of sockeye passage estimates during the 2014 Adams return, the Secretariat plans to deploy a fourth DIDSON at the site and sample a greater portion of the river. A fifth unit will be needed as a backup. Given the ongoing Fraser River Strategic Review and the development of new ARIS hydroacoustic technology, the Secretariat will lease (rather than purchase) two extra DIDSON units for the 2014 season. Costs will be covered in the ordinary budget, but searches will continue for loaned equipment to reduce expenses.

2. Transfer of selected expenses: The FY2014/2015 proposal and FY2015/2016 forecast are predicated on two assumptions: 1) certain Secretariat proposals to the Southern Fund Committee for 2014 will be successful and liberate $22,500 from the ordinary budget; and 2) more than $20,000 in test fishing sampling costs will be transferred from the ordinary budget to the test fishing budget and covered by the sale of harvested fish in each of the two fiscal years (see below).

3. Pension liability: Preliminary actuarial estimates indicate that the Commission pension plan's unfunded liability will increase by $48,000 - $156,000 per year beginning January 1, 2015. The actual liability will be determined in April 2014, and must be paid from Commission funds in 2015. While specific payments won't be known until April, the Secretariat has cash reserves on hand to pay the expected liability in the last three months of FY2014/2015 (January – March 2015) and all or nearly all of the FY2015/2016 liability. See below for information on the pension liability after 2016.

Test fisheries

The Committee endorsed the Canadian proposal to repeat the Secretariat's administration of various test fisheries for an additional year in 2014 under the same conditions as 2013 and noting that non-Fraser Panel approved test fisheries will not affect Panel-approved test fisheries. After the fishing season concludes, the Secretariat will consult with Canadian personnel and prepare an evaluation of the 2014 operations. This

Committee will review this report in December 2014, and by February 2015 identify long-term test fishing policy issues for the Commission to address.
As noted above, the budget proposal and forecast assume the following costs will be transferred from the ordinary budget to the test fishing program and its revenues since these costs are directly related to test fishing operations:

- 2014: $10,842 in temporary salary costs for test fishing samplers, and $14,655 freight costs related to transportation and delivery of samples (total $25,497)

- 2015: $9,620 temporary salary costs; $13,429 freight (total $23,049, pending a final test fishing plan for 2015)

Ongoing pension liability

The Committee notes that the Commission could incur an additional pension liability of $48,000 - $156,000 per year, at least from 2015 to 2018 (when the next valuation determines new liability payments). Canada has stated that it does not expect contributions to increase and understands the costs of these liabilities for current staff are considered within national contributions. The United States has expressed concern over this position, and the Committee draws the Commission's attention to this significant funding issue that will affect budget forecasts in the next meeting cycle and potential operational capacity.

B. MEETINGS OF THE STANDING COMMITTEE ON SCIENTIFIC COOPERATION

The Committee on Scientific Cooperation (CSC) met with PSC technical committee members during the January and February 2013 PSC meetings to (a) solicit advice on a potential process whereby Technical Committee Co-Chairs could effectively identify science issues that might benefit from CSC involvement, (b) develop a list of issues or concerns that seem of special interest to Technical Committee Co-Chairs, and (c) identify a smaller set of issues that might benefit from CSC scrutiny or involvement.

An issue discussed during these meetings was the importance of providing PSC technical committee quantitative fisheries scientists with training in modern Bayesian statistical analysis techniques. Dr. Catherine Michielsens, an expert in Bayesian statistics and head of PSC Stock Assessment, provided training in Bayesian statistical analysis to members of the Fraser River Panel and the Fraser River Technical Committee in 2013. The CSC and technical committee members agreed that training would be offered by Dr. Michielsens to members of the Chinook Technical Committee in 2014 and 2015.

The importance of finding opportunities to enhance or to perhaps replace the Coded Wire Tag system was another issue of concern that arose during discussions between the CSC and technical committee members. Therefore, in September 2013, the CSC convened a steering committee of experts on genetics and from within PSC technical committees to determine the best way to review the potential benefits and shortfalls of parentage-based genetic tagging (PBT) versus Coded Wire Tagging. The steering committee recommended that an objective, independent consultant should conduct the review. Based on feedback from the steering committee, the CSC submitted a proposal to the Northern and Southern Fund Committees to initiate contracts with an independent contractor to review parentage-based genetic tagging. The Southern Fund Committee subsequently funded the project.

The steering committee also flagged the examination of radio frequency identification (RFID) tagging for use in fisheries management as a high priority. The CSC planned to submit a proposal to the Fund Committees to study the effectiveness of RFID tagging at a future date.

C. MEETINGS OF THE NORTHERN AND SOUTHERN FUND COMMITTEES

The Northern and Southern Fund Committees have agreed that given the congruent nature of their agendas and their decision to combine the funds into a single master account for investment management purposes, and the efficiencies involved with respect to interaction with the fund managers, it was appropriate to meet together as a Joint Fund Committee at least once a year for an annual financial review and investment manager interviews. The Joint Fund Committee met in person twice in fiscal year 2013/14, on April 23rd, 2013 and on November 13th and 14th, 2013.

At the April meeting the Fund Committees received the first Quarter report from Mr. Chris Kautzky of Aon Hewitt. Mr. Kautzky also provided a review of market volatility and the effect on the Fund's master trust of the hiring of two new managers in real estate and infrastructure. Mr. Kautzky gave a brief presentation on the value-management investment style and the value manager universe for the benefit of new Committee members. He also provided a brief historical record of the master trust investment strategy history and milestones. Mr. Kautzky's final task was to describe investment manager performance evaluation techniques.

The next agenda item was a presentation and question and answer period with Dr. Laura Richards from DFO and Canadian co-chair of the PSC's Committee on Scientific Cooperation. Under discussion was progress by the CSC towards a final version of their out-of-cycle funding request. The Fund Committees agreed to prepare a letter outlining their concerns to be sent to the CSC co-chairs.

A discussion on Fund accounting procedures with respect to Administration costs followed. A contract with auditing firm KPMG was considered, but the Committee decided to accept a staff proposal to bolster internal controls with a review in November.

The future of the Sentinel Stocks Program was briefly discussed, but Committee members decided that a more meaningful discussion could take place following the Commission's Executive session in October 2013.

At the November meeting, Mr. Chris Kautzky of Aon Hewitt presented the Third Quarter report for 2013. He described global market conditions for the year to date and went into some detail on the performance of each of the Fund's investment managers ahead of the in-person interviews that would follow in the agenda.

The Committee then heard in-person presentations, first from the co-founder of the Fund's new infrastructure manager RARE. The next to report was Invesco, the Fund's real estate portfolio manager. The Committee were satisfied with these manager's reports. The third manager to report was Brandes and a lengthy discussion followed. Mr. Kautzky assured the Committee that Brandes still warranted a hold rating with his firm and that their performance had improved considerably over the last 4 quarters. The Committee debated their strategy with respect to Brandes at some length. The last manager to report was LSV whose performance had been only modest for the year, but who still hold a buy rating with Aon. The outcome was a motion to maintain the manager status quo for the present and review the investment strategy with Mr. Kautzky at the Spring 2014 joint Fund Committee meeting.

On the second day of the meeting the Committee and Mr. Kautzky discussed a variety of issues with respect to manager performance; performance measurement; the format and content of quarterly reports; and, changes to the structure of the in-person manager presentations

The next agenda item involved a discussion in general terms on the past practices and forward looking policies of each of the Funds regarding funding projects that meet core management responsibilities created by the PST.

The Fund Committees reviewed their audited financial statements and discussed administration costs and financial controls with PSC Secretariat Controller Ms. Ilinca Manisali. Mr. John Field also discussed

Secretariat computer infrastructure upgrades. The Fund Committees agreed to consider a proposal from Mr. Field for the Funds to financially support implementing specific server hardware upgrades.

The Fund Committees next heard a presentation form Mr. John Clark on the status of the Sentinel Stocks Program. The potential need for further financial support for the Program beyond its 5-year term was discussed. The Committee recognized that the Commission will discuss the issue in February 2014.

In the last agenda item for the meeting Southern Fund Committee members described their commitment to the Salish Sea Marine Survival program for the benefit of their Northern Fund counterparts.

Northern Fund Committee Meetings

The Northern Fund Committee met three times during fiscal year 2013/14.

April 24th, 2013

- Potential for a Call for Proposals for 2014.
- Fund financial obligations in 2014.
- Northern and Transboundary Panel input.
- Timetable.

September 19th through 25th, 2013

- Site visit tour of project sites in Northern BC including Terrace, the Nass Valley, Stewart and Hyder, AK, Hazleton, Kitwanga, the Skeena Valley and Prince Rupert.
- First round selection of project concepts to be invited to proceed to stage two. Meeting held in Vancouver, BC.

January 29th, 2014

- Final selection of projects for funding in 2014. This meeting was held at the Listel Hotel in Vancouver.

Southern Fund Committee Meetings

The Southern Fund Committee met three times during fiscal year 2013/14.

April 23rd, 2013

- Potential for a Call for Proposals for 2014.
- Fund financial obligations in 2014.
- Southern and Fraser River Panel input.
- Strategic Plan.
- Timetable.
- Out-of-cycle funding requests.

September 26th, 2013.

- Site visit tour of project sites on Vancouver Island including the Cowichan River and estuary, Campbell River, Gold River, the Burman River and Nanaimo.
- First round selection of project concepts to be invited to proceed to Stage Two. This meeting was held in Gold River on Vancouver Island.

February 13th, 2014

- Final selection of projects for funding in 2014. This meeting was held at the Wall Centre in Vancouver.

A list of all 2013/14 Northern and Southern Fund projects can be found in Appendices A and B.

Activities of the Panels

PART III
ACTIVITIES OF THE PANELS

A. FRASER RIVER PANEL

At the January meeting the Panel received reports reviewing the 2013 fishing season, and resulting Total Allowable Catch (TAC) calculations and reports related to 2014 pre-season planning including management adjustments, test fishing schedule and administration. At the February meeting, the Panel finalized 2013 TAC calculations and received reports from Canada on 2013 escapements and 2014 pre-season return forecasts. Additional reports were provided on 2014 Washington sockeye forecasts, Management adjustment models, 2014 test fisheries and a few topics related to hydroacoustics sampling.

B. NORTHERN PANEL

No report was received by the time of publication.

C. SOUTHERN PANEL

No report was received by the time of publication.

D. TRANSBOUNDARY PANEL

In respect of fiscal challenges beyond control, and on the recommendation of the Pacific Salmon Commission, the Transboundary Rivers Panel held one consolidated bilateral meeting in 2014 in place of the typical two meeting cycle. The consolidated meeting was held in conjunction with the Pacific Salmon Commission's Post-Season meeting in Portland from January 13 - 17, 2014.

The 2014 Transboundary Rivers Panel consolidated meeting involved bilateral discussion of both post-season and pre-season salmon management matters for the Stikine, Taku and Alsek Rivers. Fishery managers and technical staff from both Canada and the United States presented information to the Panel pertaining to treaty-related fishery performance, overall status of stocks and enhancement activities in the Transboundary Rivers area for the 2013 season. At this meeting the Panel approved the 2012 Stikine Enhancement Production Plan and Taku Enhancement Production Plan outcomes as well as 2014 Production Plans for both Stikine and Taku Rivers. In addition, the Panel received an update on the status of Canada's technical analysis to support the development of a biological escapement goal for Taku River coho salmon and achieved bilateral agreement on an interim escapement target and test fishery / harvest allocation in Canada, received an update on the assessment of Taku River Chinook salmon stocks in 2013 as well as preliminary plans for the 2014 assessment program, received a presentation on 2014 Northern Endowment Fund proposals in the Transboundary Rivers Area as well as a presentation on the current status of genetic stock identification in each of the transboundary watersheds, and achieved bilateral agreement on a strategy for accounting for removals through test fisheries for situations where specific language governing necessary test fisheries is not provided within the Transboundary Rivers Chapter of the Pacific Salmon Treaty.

Notably, the Panel also achieved bilateral agreement on an approach to "Paragraph 4" (overage and underage) matters intended to provide accountability for escapement goals, total allowable catch and actual harvests by both Canada and the United States as set out within the Transboundary Rivers Chapter of the Pacific Salmon Treaty. The Panel completed a review of fishery and management performance for the previous 5 years and achieved bilateral agreement on specific measures to be implemented by each of the Parties in 2014 to address overage and underage situations as per Paragraph 4 (Triggers 2 and 3). In preparation for the 2015 Transboundary Rivers Panel meeting, the Panel agreed to develop proposed options for harvest sharing of coho salmon on the Taku River to accompany anticipated completion of the technical analysis to support the development of a biological escapement goal.

Review of 2013 Fisheries and Treaty-Related Performance

PART IV
REVIEW OF 2012 FISHERIES AND TREATY-RELATED PERFORMANCE

The following review has been drawn from a number of reports prepared by Commission staff, joint technical committees, and domestic agencies for presentation to the Commission. Source documents are referenced for each part of this review. All figures are preliminary and will be updated in future reports as more complete tabulations become available.

A. FRASER RIVER SOCKEYE SALMON

Pre-season Planning

1. Pre-season expectations were for a median run size (p50 level) of 4,765,000 Fraser River sockeye salmon, and 8,926,000 Fraser River pink salmon.

2. Pre-season expectations of migration parameters included a 35% diversion rate for Fraser River sockeye through Johnstone Strait and a 41% diversion rate for Fraser River pink salmon. For fisheries planning, a separate 18.9% diversion rate was assumed for the Harrison stock. Expected Area 20 50% migration dates were July 5 for Early Stuart, July 23 for Early Summer-run, August 3 for Summer-run, August 12 for Late-run sockeye and August 28 for pink salmon.

3. Pre-season spawning escapement goals were 108,000 Early Stuart, 141,000 Early Summer-run, 1,487,000 Summer-run (including Raft/North Thompson, and Harrison) and 313,000 Late-run (including Birkenhead) sockeye for a total of 2,049,000 sockeye spawners and 6,000,000 pink spawners. The goals for each sockeye management group were established by applying Canada's Spawning Escapement Plan to the forecasted run size. For pre-season planning purposes, Late-run catches were constrained by a 20% low abundance exploitation rate (LAER).

4. Management Adjustments (MAs) of about 62,000 Early Stuart fish, 65,000 Early Summer-run fish, and 143,000 Summer-run fish were added to the spawning escapement targets to increase the likelihood of achieving the targets. The Early Stuart, Early Summer-run (excluding Pitt and Chilliwack) and Summer-run (excluding Harrison) MAs were based on relationships between river conditions (discharge and temperature) and historic differences between lower and upriver escapement estimates. The Early Summer-run aggregate pMA was the weighted average of the forecasted pMA for the non-Pitt, non-Chilliwack Early Summer component and fixed pMAs for Chilliwack and Pitt, using p50 forecast abundances. The MA for the total Summer-run was calculated from a weighted average of a fixed Harrison pMA and the forecasted pMA for the non-Harrison Summer-run component.

5. For Late-run sockeye, the Panel assumed a continuation of the early upstream migration behaviour and associated high mortality that has occurred since 1996. For pre-season planning, the Panel adopted a Late-run MA of 209,000 fish based on a weighted average of a fixed Birkenhead pMA and a cycle-line median pMA for Late-runs (excluding Birkenhead) since 1996 the using the p50 forecast level of abundances.

5. The projected International Total Allowable Catch (TAC) of Fraser River sockeye salmon based on the median forecasted abundances and agreed deductions was 1,727,000 sockeye, of which 16.5% (285,000 sockeye) were allocated to the United States (U.S.). The projected TAC of Fraser River pink salmon based on the median forecast abundance and agreed deductions was 2,843,000 pinks, of which 25.7% (731,000 pinks) were allocated to the U.S.

7. Pre-season model runs indicated it was unlikely the Summer-run TAC could be fully harvested, due to the need to constrain fisheries in order to achieve spawning escapement targets for co-migrating Early Summer and Late-run stocks. However, at assumed marine timing, abundances and diversion rates in the base-case model, both countries were able to achieve their pink salmon TAC allocations.

8. The Panel adopted the Management Plan Principles and Constraints.

In-season Management Considerations

9. Marine migration timing was a several days (6-10 days) later than pre-season expectations for the Summer and Late-run sockeye management groups, while the Early Stuart group was 2 days earlier than expected and the Early Summer group was 1 day later than expected. The migration of Fraser pink salmon was 2 days later than expected.

10. The overall Johnstone Strait diversion rate was 71% for sockeye and 65% for pink salmon, compared to pre-season forecasts of 35% and 41%, respectively.

11. Total sockeye salmon returns fell short of the median pre-season forecast, while pink salmon returns exceeded the median pre-season forecast. Of the individual groups, especially Summer-run and Early Stuart fell short of expectations while Early Summer-run and Late-run exceeded expectations.

12. River temperatures were warmer than average and flow levels lower than average. As a result of the higher than expected temperature levels, Management Adjustment values were increased in-season for all groups: for Early Stuart to 144,000 fish, for Early Summer-run to 176,000 fish and for Summer-run to 3,110,000 fish. Most Late-run sockeye migrated upstream without delaying in the Strait of Georgia. However, the preseason Management Adjustment for the Late-run excluding Birkenhead was not updated in-season due to the low relative abundance of Late-run sockeye, the accuracy and precision of stock ID which both impact the prediction of upstream timing. The late-run MA increased to 288,000 fish because the relative weights of Birkenhead and non-Birkenhead stocks changed over the course of the season.

Run Size, Catch and Escapement

13. Returns of adult Fraser sockeye totalled 4,233,000 fish, more than two and a half times the brood year abundance of 1,637,000 fish in 2009, but otherwise the lowest return on this cycle since 1965. Divided into management groups, adult returns totalled 182,000 Early Stuart, 361,000 Early Summer, 2,880,000 Summer and 809,000 Late-run sockeye.

14. Catches of Fraser River sockeye salmon in all fisheries totalled 531,000 fish, including 411,000 fish caught by Canada, 20,000 fish caught by the U.S. and 100,000 fish caught by test fisheries. Most of the Canadian catch occurred in First Nations fisheries (407,000 fish). In Washington, commercial catches totalled 20,000 Fraser sockeye, with almost all caught in Treaty Indian fisheries. Fisheries in Alaska harvested almost no Fraser sockeye. The overall harvest rate was 13% of the run, which is the second lowest harvest rate since at least 1985, following 2009.

15. DFO's near-final estimates of spawning escapements to streams in the Fraser River watershed totalled 2,479,000 adult and 93,000 jack sockeye. This was more than double the brood year escapement of 1,056,000 adults and similar to the average for both the cycle and the entire time series since 1985. By management group and for this cycle line, adult spawning escapements in 2013 were below the 1941-2012 average for the Early Stuart system, the second highest Early Summer escapement, slightly above average for Summer-run escapement, and the second highest Late-run escapement. There were 1,244,000 effective female spawners in the Fraser watershed, representing an overall spawning success of 97%.

16. Preliminary estimates of Run-size Adjustments (RSAs) are 84,000 Early Stuart, 92,000 Early Summer, 517,000 Summer and 436,000 Late-run sockeye, for a total of 1,129,000 Fraser sockeye.

17. The in-season run-size estimate of 26,000,000 Fraser River pink salmon was revised post-season to 15,898,000 fish, making it 78% larger than forecasted and above average when considering the years since 1959 when records began. Catches totalled 6,553,000 fish, with 3,314,000 caught by Canada, 3,200,000 by the U.S. and 39,000 in test fisheries. This catch represents an exploitation rate of 41%, which is the largest since 1997.

18. Since 2009, post-season estimates of pink salmon passage have been obtained through the hydroacoustics system at Mission. In 2013, the run size of Fraser River pink salmon was calculated by adding the total catch of pink salmon below Mission (5,362,000 fish) to the Mission passage estimate (10,535,000 fish) while the spawner abundance (9,344,000 fish) was calculated by subtracting total catch from the run size.

Achievement of Objectives

19. In order of descending priority, the goals of the Panel are to achieve the targets for spawning escapement, international sharing of the TAC and domestic catch allocation.

20. In-season management decisions are based on targets for spawning escapement, which are represented in-season by potential spawning escapement targets (i.e., spawning escapement targets plus MAs). In-season estimates of potential escapement (i.e., Mission escapement minus all catch above Mission) were close to the target for Early Stuart sockeye (6% under), higher than the target for Early Summer-run (23% over), below target for Summer-run (15% under), and close to target for Late-run (7% under) sockeye.

21. Spawning ground estimates of Fraser sockeye abundance totalled 2,479,000 adults, which is 35% above the post-season target. Spawner abundance was below the target for Early Stuart sockeye (20% under), but exceeded the targets for Early Summer (42% over) and Summer (51% over) management groups, and was relatively close to target for Late-run (11% under) sockeye. More than ninety percent of the Early Stuart run was protected from harvest. Thus the poor result on the spawning grounds was mostly a consequence of elevated levels of en route mortality due to the very high discharge levels in the Fraser River during the Early Stuart migration period. Despite poor environmental conditions during its migration, the Summer-run group did not experience high levels of en-route mortality as predicted by the Management Adjustment models.

22. The TAC (Total Allowable Catch) of Fraser sockeye was 83,000 fish, based on the calculation method set out in Annex IV, Chapter 4 of the Pacific Salmon Treaty and the February 17, 2011 Commission Guidance. The Washington catch of 20,200 Fraser sockeye was 6,600 fish more than their 16.5% share. The total Canadian catch of 410,000 Fraser sockeye (excluding the ESSR catch of 1,200 Weaver sockeye) was 59,000 fish less than their in-season catch goal (83.5% of TAC + 400,000 fish AFE). In these calculations, the TAC is fixed on the date that Panel control of the last U.S. Panel Area was relinquished (October 10 in 2013), while catches are post-season estimates.

23. In terms of domestic allocation objectives for Fraser sockeye, Treaty Indian fishers were 10,800 fish over and All Citizen fishers were 4,200 fish under their shares of the U.S. TAC. With respect to catch allocation within Canada's commercial fleet, Area B purse seiners were 1,100 fish over, Area D gillnets were 500 fish under, Area E gillnets were 500 fish under and Area H trollers were 100 fish under their allocations.

24. The spawning escapement target for Fraser pink salmon was exceeded by 3,345,000 fish, largely because the catch of Fraser pink salmon was constrained by conservation measures to protect Late-run sockeye. The U.S. catch was 1,467,000 fish less than their 25.7% share of the international TAC and the Canadian catch was 10,180,000 fish less than their catch goal.

25. Regarding domestic allocation objectives for Fraser River pink salmon, Treaty Indian and All Citizen fishers were respectively 987,000 and 480,000 fish under their shares of the U.S. TAC. In Canada, Area B purse seiners were 618,000 fish over, Area D gillnets were 219,000 fish under, Area E gillnets were 229,000 under, and Area H trollers were 169,000 fish under their respective allocations within the commercial catch.

26. By-catches of non-Fraser sockeye and pink salmon in commercial net fisheries regulated by the Fraser River Panel totalled 10 sockeye and 930,000 pink salmon. Catches of other Fraser and non-Fraser salmon species included 4,500 chinook, 12,000 coho, 1000 chum and 10 steelhead.

Allocation Status

27. There is a U.S. payback of 6,600 Fraser River sockeye to carry forward to 2014 but no payback owed for pink salmon.

B. 2013 POST-SEASON REPORT FOR UNITED STATES SALMON FISHERIES OF RELEVANCE TO THE PACIFIC SALMON COMMISSION

Northern Boundary Area Fisheries

District 104 Purse Seine Fishery

The 2009 Pacific Salmon Treaty (PST) Agreement calls for abundance based management of the District 104 purse seine fishery. The agreement allows the District 104 purse seine fishery to harvest 2.45 percent of the Annual Allowable Harvest (AAH) of Nass and Skeena sockeye salmon prior to Alaska Department of Fish and Game (ADFG) statistical week 31 (referred to as the treaty period). The AAH is calculated as the total run of Nass and Skeena sockeye salmon minus either the escapement requirement of 1.1 million (200,000 Nass and 900,000 Skeena) or the actual in-river escapement, whichever is less.

The District 104 purse seine fishery opens by regulation on the first Sunday in July. In 2013, the initial opening was July 7 (week 28). The pre-week 31 fishing plan for District 104 was based on the preseason Canadian Department of Fisheries and Oceans (DFO) forecast returns of approximately 1,152,000 Nass and Skeena sockeye salmon. In the 2013 Treaty period (Alaska statistical weeks 28-30), 13,102 sockeye were harvested during one 12-hour openings in Week 28; one 12-hour openings in Week 29, and one 12-hour and one 10-hour opening in week 30 (Table 1). A total of 36 purse seine vessels fished at some time in the district during the Treaty period. In past years 60% to 80% of Treaty-period sockeye salmon have been of Nass and Skeena origin, therefore we would anticipate between 7,900 and 10,500 Nass and Skeena sockeye may have been harvested in the District 104 purse seine fishery during the 2013 Treaty period. The final number of Nass and Skeena sockeye salmon harvested, and the actual catch by stock, will not be available until catch, escapement, and stock composition estimates are finalized for the year.

In 2013, a total of 10,863,894 pink salmon, 82,882 sockeye salmon, 84,330 chum salmon, 79,224 coho salmon, and 3,116 Chinook salmon were harvested in the District 104 purse seine fishery (Table 1). The number of days that the fishery was open was just above the treaty period (1985-2012) average (Figure 1) and the number of boats fishing was below average throughout the season (Figure 2). Chinook salmon catches in the District 104 purse seine fishery were near average following the purse seine non-retention period for Chinook salmon that lasted from the beginning of the season until week 32 (Figure 3). Sockeye salmon catches were well below average throughout the season (Figure 4) and the treaty period (week 28-30) catch of 13,102 was only 13% of the 1985–2012 average. The total sockeye salmon catch of 82,882 was also well below the long-term average. Catches of coho salmon were below average in most weeks (Figures 5) and the overall harvest was 67% of the long-term average. Pink salmon catches were above average most of the season (Figure 6), while chum salmon were below average in all weeks (Figure 7).

Since the Pacific Salmon Treaty was signed in 1985, the number of hours open, boats fishing and boat-days fished in the pre-Week 31 annex period in District 104 are down 55%, 61% and 84% respectively compared to the averages in the pre-treaty 1980-1984 period (Table 2). The total pre-week 31 Treaty-period sockeye salmon harvest is also down 46%. The seine fleet moves freely between districts as various species are harvested, so seining opportunities elsewhere affect the effort and catch in District 104.

Table 1.– Catch and effort in the Alaska District 104 purse seine fishery, 2013.

Week/ Opening	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Hours
28	7/7	0	5,152	7,921	167,731	12,023	18	12
29	7/14	0	3,250	5,565	91,632	4,426	17	12
30	7/21	0	2,602	3,208	241,387	4,084	17	12
30B	7/24	0	2,098	1,584	183,946	2,982	10	10
31	7/28	0	8,011	3,445	1,211,657	6,973	27	39
31B	8/1	0	3,397	2,768	566,063	5,600	17	39
32	8/5	0	6,052	6,264	1,037,434	9,109	28	39
32B	8/9	729	9,943	5,800	1,266,419	7,991	34	39
33	8/13	1,169	19,206	9,624	2,254,693	10,851	50	39
33B	8/17	404	8,811	7,433	1,560,575	8,268	45	39
34	8/21	587	8,310	10,330	1,251,933	6,156	48	39
35	8/25	179	3,157	4,099	613,699	3,323	33	39
35B	8/29	30	2,045	4,247	296,264	1,365	17	39
36-36B[a]	9/2	18	848	6,936	120,461	1,179	15	78
							Permits Fished	
Weeks 28-30		0	13,102	18,278	684,696	23,515	36	46
Weeks 31-36		3,116	69,780	60,946	10,179,198	60,815	83	429
Total		3,116	82,882	79,224	10,863,894	84,330	88	475

[a] Opening with fewer than three permits, confidential information so data combined in catch table.

Table 2.– Fishing opportunity, effort, and sockeye salmon harvest prior to week 31 in the District 104 purse seine fishery, 1980–2013.

Year	Hours Fished	Boats Fishing	Fraction Days Fished (1d=15hrs)	Boat-Days Fished (Fraction Boats and Fraction Days)	Sockeye Harvest	Sockeye Catch per Boat-Day
1980	207	244	13.8	2,877	266,273	93
1981	132	212	8.8	1,108	185,188	167
1982	117	255	7.8	1,435	213,150	149
1983	108	241	7.2	1,211	170,306	141
1984	132	174	8.8	805	103,319	128
1985	84	141	5.6	502	100,590	200
1986	108	194	7.2	968	91,320	94
1987	90	134	6	457	72,385	158
1988	108	210	7.2	994	248,789	250
1989	84	135	5.6	438	157,566	360
1990	42	171	2.8	276	169,943	615
1991	41	134	2.7	243	98,583	406
1992	29	108	1.9	142	79,643	561
1993	45	171	3	343	163,189	476
1994	55	84	3.7	202	158,524	783
1995	58	109	3.9	218	71,376	328
1996	31	113	2.1	128	215,144	1,684
1997	56	159	3.7	409	572,942	1,402
1998	32	78	2.1	89	17,394	196
1999	30	38	2	44	7,664	174
2000	81	66	5.4	192	48,969	255
2001	50	95	3.3	182	203,090	1,115
2002	72	44	4.8	124	26,554	215
2003	52	40	3.5	97	84,742	875
2004	107	24	7.1	102	30,758	302
2005	68	38	4.5	93	35,690	382
2006	95	39	6.3	117	89,615	766
2007	50	68	3.3	136	112,135	824
2008	33	17	2.2	22	6,262	281
2009	72	38	4.8	95	15,971	168
2010	55	21	3.7	39	4,617	118
2011	84	29	5.6	77	25,280	329
2012	75	30	5.0	93	18,300	196
2013	46	36	3.1	59	13,102	222
Avg. 80–84	139	225	9	1,487	187,647	136
Avg. 85–12	63	88	4	237	101,384	474
% Change	-55%	-61%	-55%	-84%	-46%	249%

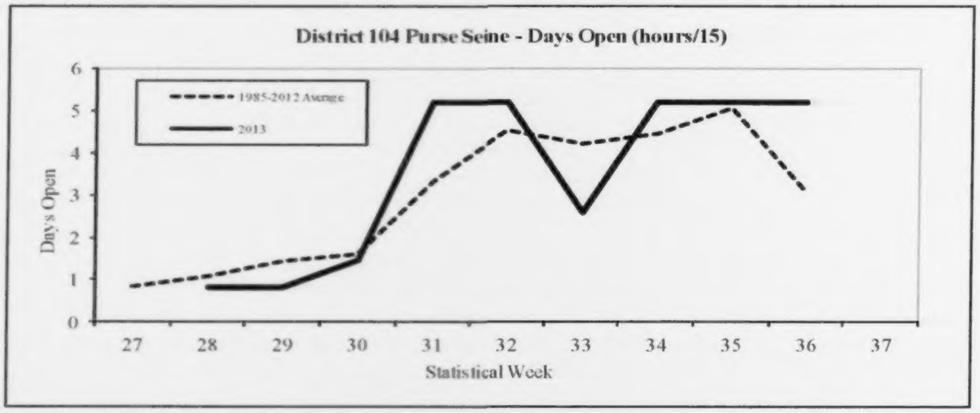

Figure 1.– Days open by week in the District 104 purse seine fishery, 2013.

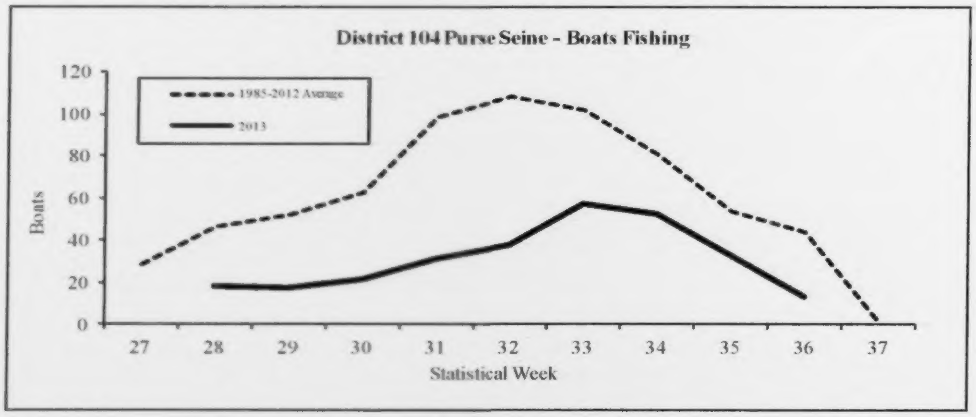

Figure 2.– Number of boats fishing by week in the District 104 purse seine fishery, 2013.

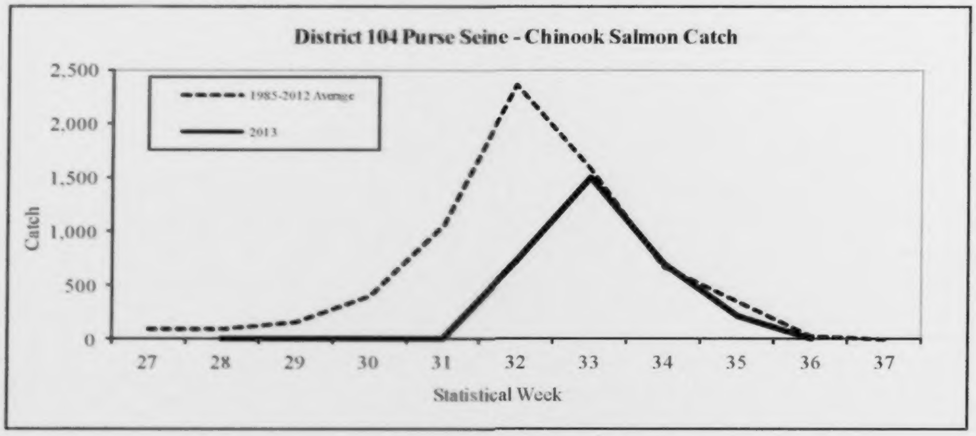

Figure 3.– Chinook salmon catch by week in the District 104 purse seine fishery, 2013.

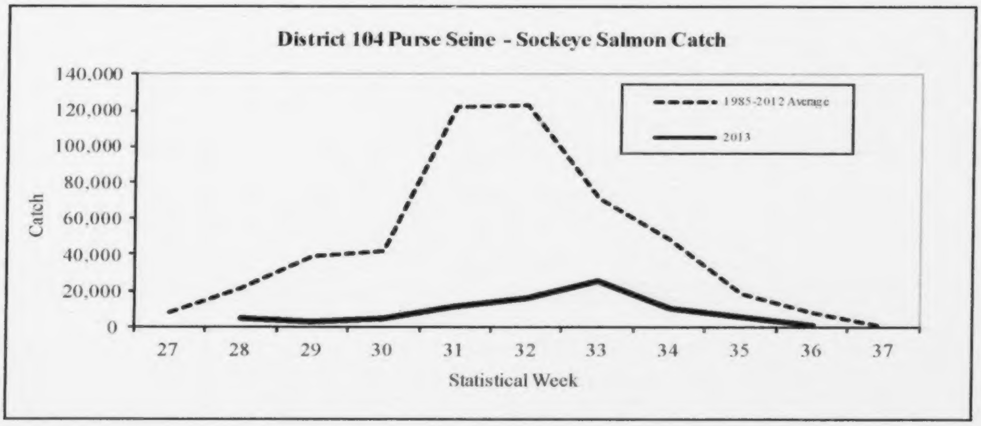

Figure 4.– Sockeye salmon catch by week in the District 104 purse seine fishery, 2013.

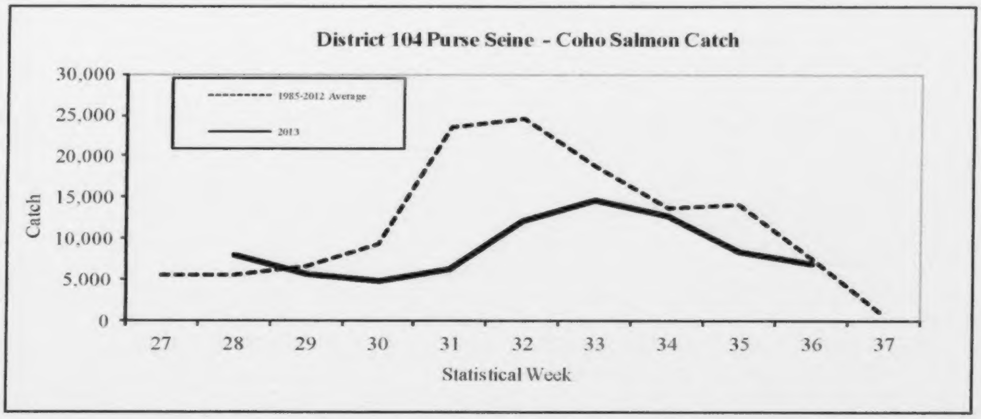

Figure 5.– Coho salmon catch by week in the District 104 purse seine fishery, 2013.

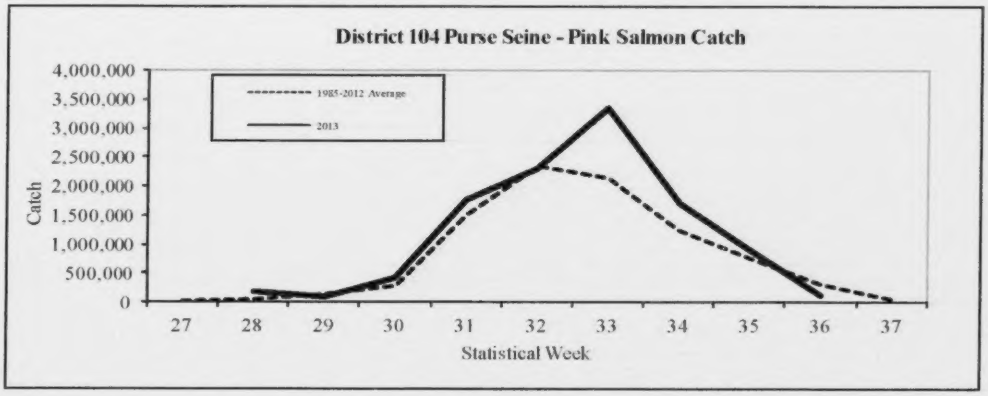

Figure 6.– Pink salmon catch by week in the District 104 purse seine fishery, 2013.

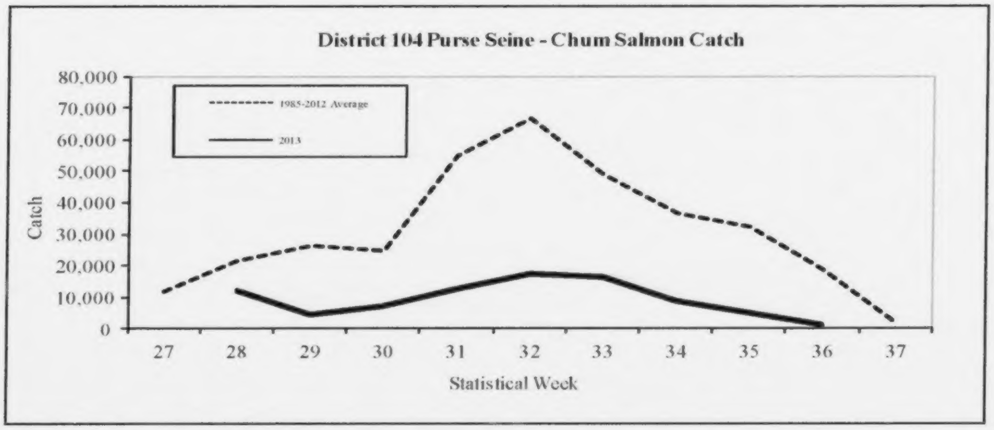

Figure 7.– Chum salmon catch by week in the District 104 purse seine fishery, 2013.

District 101 Drift Gillnet Fishery

The 2009 PST agreement calls for abundance based management of the District 101 (Tree Point) drift gillnet fishery. The agreement specifies a harvest of 13.8 percent of the AAH of the Nass River sockeye run. For the 2013 season, DFO forecast a total return of 452,000 Nass River sockeye salmon. The AAH is calculated as the total run of Nass sockeye salmon minus either the escapement requirement of 200,000 or the actual in-river escapement, whichever is less.

The District 101 drift gillnet fishery opens by regulation on the third Sunday in June, which was June 16 in 2013. During the early weeks of the fishery, management is based on the run strength of Alaska wild stock chum and sockeye salmon and on the run strength of Nass River sockeye salmon. Beginning in the third week of July, when pink salmon stocks begin to enter the fishery in large numbers, management emphasis shifts by regulation to that species. By regulation, the District 101 Pink Salmon Management Plan begins the third Sunday in July and sets gillnet fishing time in this district in relation to the District 101 purse seine fishing time. Beginning in Week 37 (September 8) management was based on the strength of wild stock fall chum and coho salmon.

The District 101 drift gillnet fishery opened Sunday June 16 (week 25) in 2013. The number of days the fishery was open was slightly above average all season (Figure 8). The number of boats fishing during weekly openings remained below average until late in the season (Figure 9). The total number of individual boats fishing during the season was 91, which was 81% of the 1985-2012 average of 113 boats. A total of 54,597 sockeye salmon were harvested, which was only 43% of the 1985-2012 average of 127,862 fish (Table 3). Catches of sockeye salmon were below treaty period averages throughout the entire season (Figure 10). The cumulative sockeye salmon harvest prior to the initiation of the PSMP in Week 29 was 34,000 fish, or about 62% of the season's total sockeye salmon harvest. The final number of Nass River sockeye harvested at Tree Point will not be available until catch, escapement, and stock composition estimates are finalized for the 2013 season. In past years approximately 70% of the District 101 gillnet sockeye harvest has been of Nass River origin, therefore we would anticipate that approximately 38,200 Nass River sockeye may have been harvested in the District 101 gillnet fishery in 2013.

Coho salmon catches were above average throughout the season, with particularly large catches in late August and September (weeks 35–39, Figure 11). Pink salmon catches were also well above average most of the season (Figure 12). Chum salmon catches were above average early in the season but fell below average beginning in mid-July (Figure 13). Chinook salmon catches were above average early in the season (Figure 14).

Table 3.– Weekly catch and effort in the Alaska District 101 commercial drift gillnet fishery, 2013

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Hours
25	6/16	530	9,082	723	160	9,585	57	96
26	6/23	567	12,186	1,862	4,156	26,223	70	96
27	6/30	416	7,267	2,889	32,093	34,018	60	96
28	7/7	246	5,508	2,402	72,654	53,180	68	96
29	7/14	147	6,577	2,969	67,299	31,351	65	96
30	7/21	71	5,790	4,830	82,577	14,512	57	120
31	7/28	45	5,130	3,875	133,969	14,579	55	120
32	8/4	19	1,684	3,787	100,903	7,446	51	120
33	8/11	7	662	2,625	100,143	4,066	38	120
34	8/18	2	477	6,015	61,079	7,672	41	120
35	8/25	0	154	9,296	30,218	10,855	43	120
36	9/1	4	55	12,495	5,381	6,423	45	120
37	9/8	1	16	20,380	2,612	5,802	48	96
38	9/15	2	8	17,980	196	3,804	43	96
39	9/22	2	1	9,154	1	1,593	30	96
40	9/29	3	0	4,349	0	1,045	18	96
Total		2,062	54,597	105,631	693,441	232,154	91	1,704
1985-2012 Avg.		1,490	127,862	46,437	507,607	306,636	113	1,340

Table 4.– Sockeye salmon harvest in the Alaska District 101 gillnet fishery, 1985 to 2013, and comparison of harvest and effort (boats, hours, and boat-hours) between weeks 26 and 35 when sockeye salmon are most abundant in this district.

	Total	Catch and Effort between Weeks 26-35			
Year	Sockeye Harvest	Sockeye Harvest	Individual Permits Fished	Hours	Boat-Hours[1]
1985	173,100	159,021	153	1,032	106,209
1986	145,699	143,286	198	960	109,490
1987	107,503	106,638	170	615	64,104
1988	116,115	115,888	187	756	93,072
1989	144,936	130,024	176	1,023	117,465
1990	85,691	78,131	150	840	70,421
1991	131,492	123,508	130	984	80,064
1992	244,649	243,878	118	1,080	94,159
1993	394,098	390,299	148	1,032	102,814
1994	100,377	98,725	142	984	74,408
1995	164,294	151,131	128	1,008	82,512
1996	212,403	175,569	129	1,104	86,108
1997	169,474	152,662	128	1,008	81,672
1998	160,506	159,307	124	1,044	87,358
1999	160,028	158,268	118	1,032	80,424
2000	94,651	94,399	95	912	49,488
2001	80,041	62,129	73	1,020	46,874
2002	120,353	106,360	68	1,008	42,528
2003	105,263	96,921	68	1,104	44,008
2004	142,357	141,395	61	1,104	42,400
2005	79,725	75,875	69	1,104	40,864
2006	62,770	53,048	45	840	28,265
2007	66,822	50,642	54	1,032	33,713
2008	34,113	30,672	47	936	31,961
2009	69,859	69,325	62	1,080	43,432
2010	62,680	61,987	66	1,008	45,135
2011	88,618	87,744	84	840	47,627
2012	62,506	40,518	81	1,008	43,695
2013	54,575	45,413	91	1,104	59,437
Average 1985–2012	127,862	117,337	109	986	66,542

[1] Boat-hours equals the sum of all weekly estimates of boat-hours: boats fished multiplied by open hours. Boat-hours does not equal individual permits fished multiplied by total open hours.

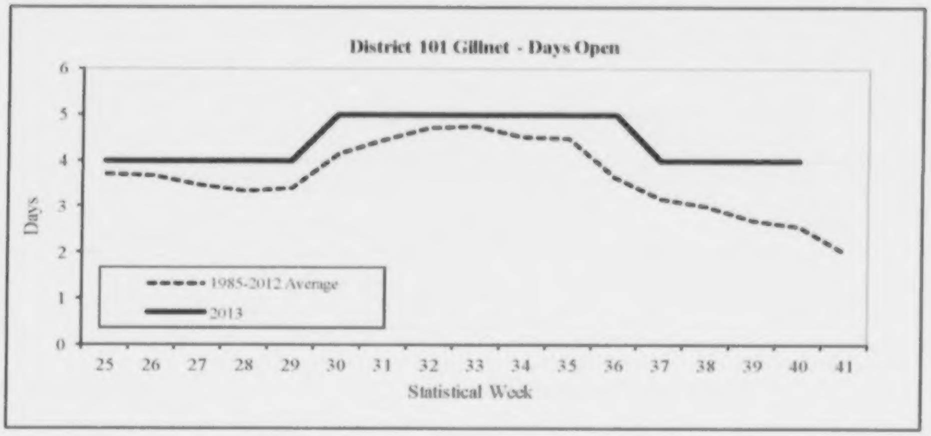

Figure 8.– Days open by week in the District 101 drift gillnet fishery, 2013.

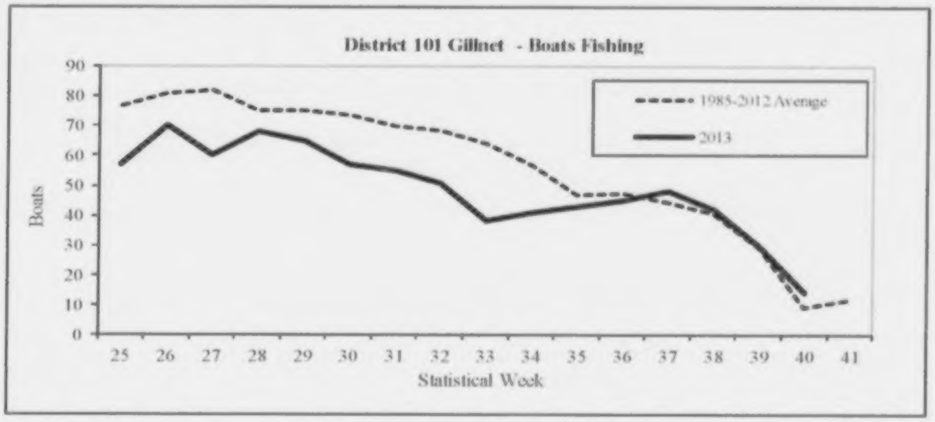

Figure 9.– Number of boats fishing by week in the District 101 drift gillnet fishery, 2013.

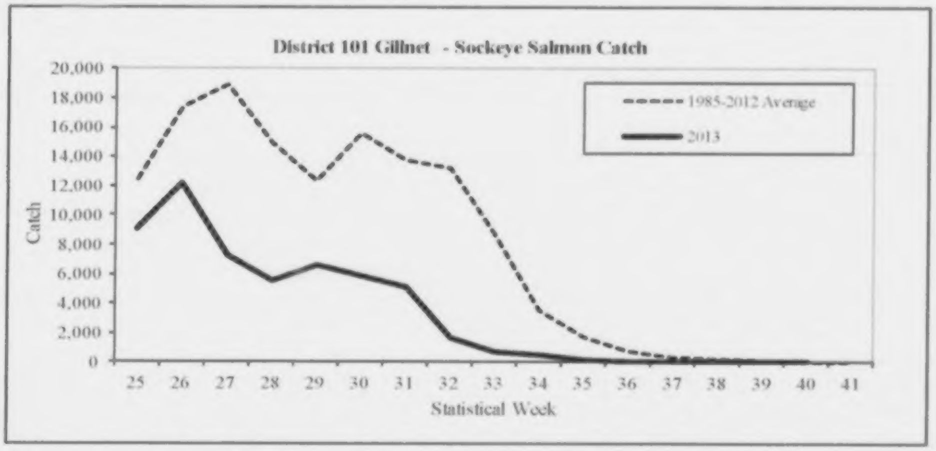

Figure 10.– Sockeye salmon catch by week in the District 101 drift gillnet fishery, 2013.

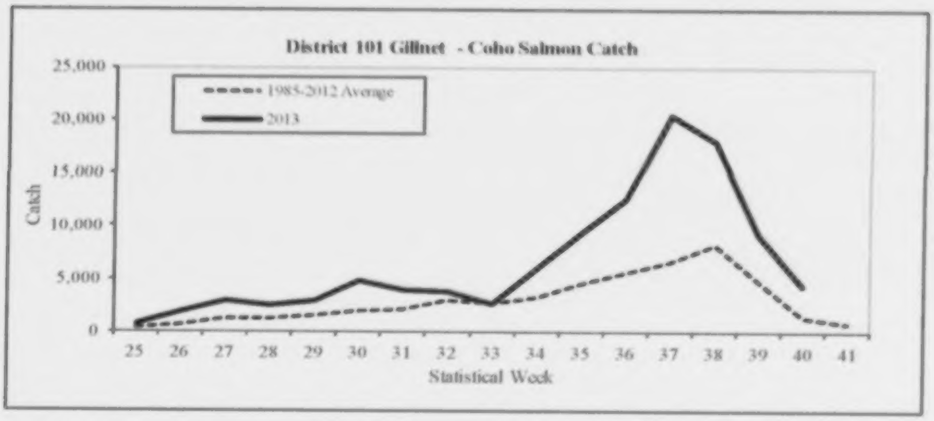

Figure 11.– Coho salmon catch by week in the District 101 drift gillnet fishery, 2013.

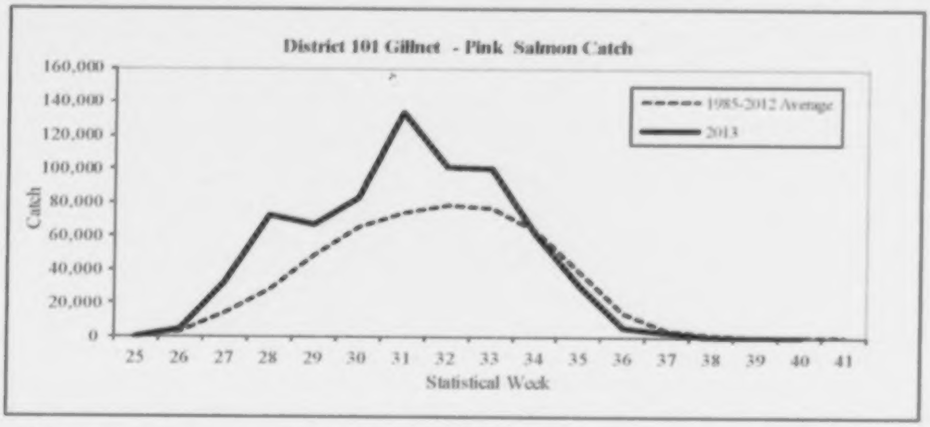

Figure 12.– Pink salmon catch by week in the District 101 drift gillnet fishery, 2013.

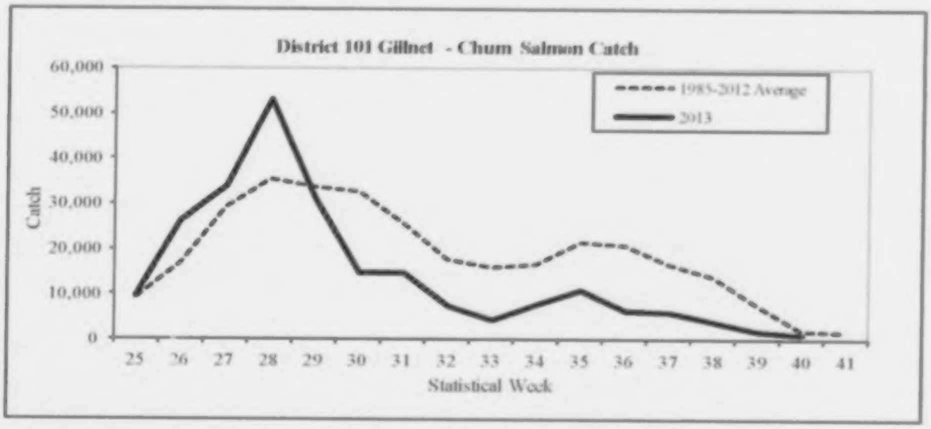

Figure 13.– Chum salmon catch by week in the District 101 drift gillnet fishery, 2013.

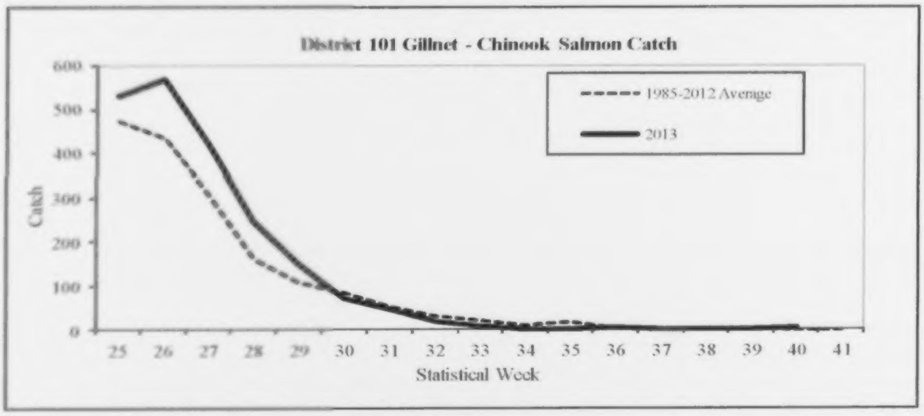

Figure 14.– Chinook salmon catch by week in the District 101 drift gillnet fishery, 2013.

Pink, Sockeye and Chum Salmon Escapements

Pink salmon returns were exceptionally strong throughout much of the region in 2013. The total 2013 Southeast Alaska pink salmon escapement index of 25.2 million index fish was the 2nd largest since 1960, and was close to doubling the recent 10-year average of 14.2 million. Biological escapement goals are in place for three subregions in Southeast Alaska and escapement goals were met or exceeded for all three subregions in 2013 (Table 5). On a finer scale, escapements met or exceeded management targets for all 15 districts in the region and for 45 of the 46 pink salmon stock groups in Southeast Alaska. The Southern Southeast Subregion includes all of the area from Sumner Strait south to Dixon Entrance (Districts 101–108). The escapement index value of 14.4 million was well above the escapement goal range of 3.0 to 8.0 million index fish and was the largest index value since 1960. The pink salmon harvest of 53.5 million in the Southern Southeast Subregion was the second highest since 1960 and the overall Southeast Alaska pink salmon harvest of 95 million fish was a new all-time record.

Table 5.– Southeast Alaska 2013 pink salmon escapement indices and biological escapement goals by subregion (in millions). The total is slightly more than the sum of all three subregions due to rounding of numbers.

Subregion	2013 Pink Salmon Index	Biological Escapement Goal Lower Bound	Biological Escapement Goal Upper Bound
Southern Southeast	14.4	3.0	8.0
Northern Southeast Inside	5.4	2.5	6.0
Northern Southeast Outside	5.3	0.75	2.50
Total	25.2		

Sockeye salmon returns throughout Southeast Alaska were mixed in 2013, with most southern stocks performing poorly. Escapement targets were met for 8 of the 13 sockeye salmon systems in Southeast Alaska with formal escapement goals. The Hugh Smith Lake adult sockeye salmon escapement was 5,950, which was below the optimal escapement goal range of 8,000 to 18,000 adult sockeye salmon. McDonald Lake sockeye salmon were recently de-listed as a "stock of management concern" at the 2012 Alaska Board of Fisheries meeting, based primarily on improved escapements since 2009. Escapements had been within the goal range from 2010 to 2012, but came in well below the lower bound of the sustainable escapement goal of 55,000 to 120,000 sockeye salmon in 2013. Based on the expanded peak foot survey count, the escapement of sockeye salmon into McDonald Lake was estimated to be 15,400 fish, which was the lowest escapement on record for that system.

For summer-run chum salmon, lower bound sustainable escapement goals were met for two of the three subregions in Southeast Alaska. In southern Southeast Alaska, runs are broken into summer and fall runs. The Southern Southeast chum salmon stock group is composed of an aggregate of 13 summer-run chum salmon streams on the inner islands and mainland of southern Southeast Alaska, from Sumner Strait south to Dixon entrance, with a sustainable escapement goal of 54,000 index spawners (based on the aggregate peak survey to all 13 streams). Summer chum salmon escapements were well below average at some of the smaller index streams in southern Southeast Alaska, but near average at most of the larger mainland systems. The index of 84,000 in 2013 was the third consecutive index value above goal, following a series of poor escapements from 2008 to 2010 (Figure 15).

Fall chum salmon runs in Cholmondeley Sound, Prince of Wales Island, were weak and the escapement goal was not met in 2013. Cholmondeley Sound is the only area in southern Southeast Alaska with a formal escapement goal for fall chum salmon. Fall chum salmon runs are monitored in Cholmondeley Sound through aerial surveys at Disappearance and Lagoon creeks. The escapement index of 13,000 was well below the lower bound of the sustainable escapement goal range of 30,000 to 48,000 index spawners (based on the aggregate peak survey to both streams; Figure 16).

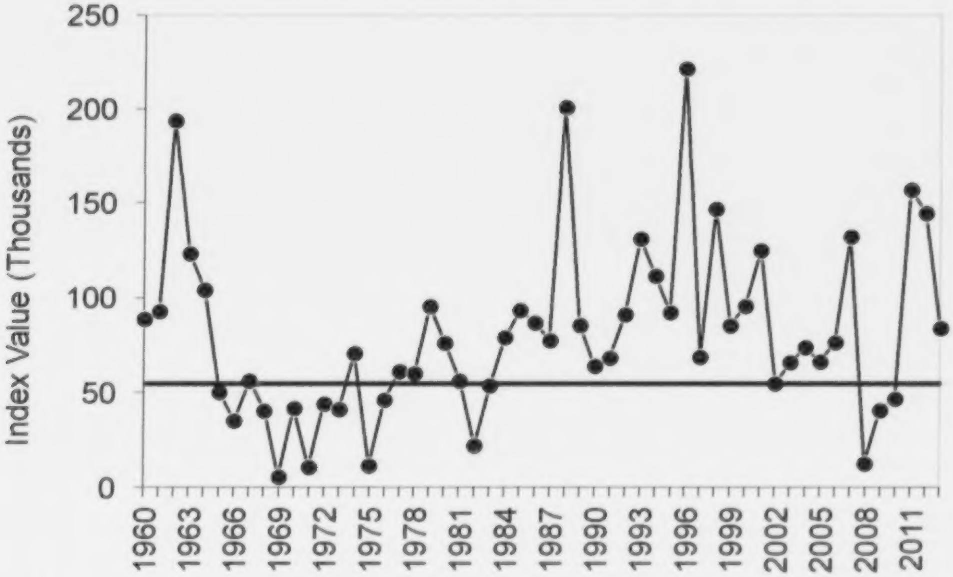

Figure 15.– Observed escapement index value by year (solid circles) and the sustainable escapement goal threshold of 54,000 index spawners (horizontal line) for wild summer-run chum salmon in the Southern Southeast Subregion, 1980–2013.

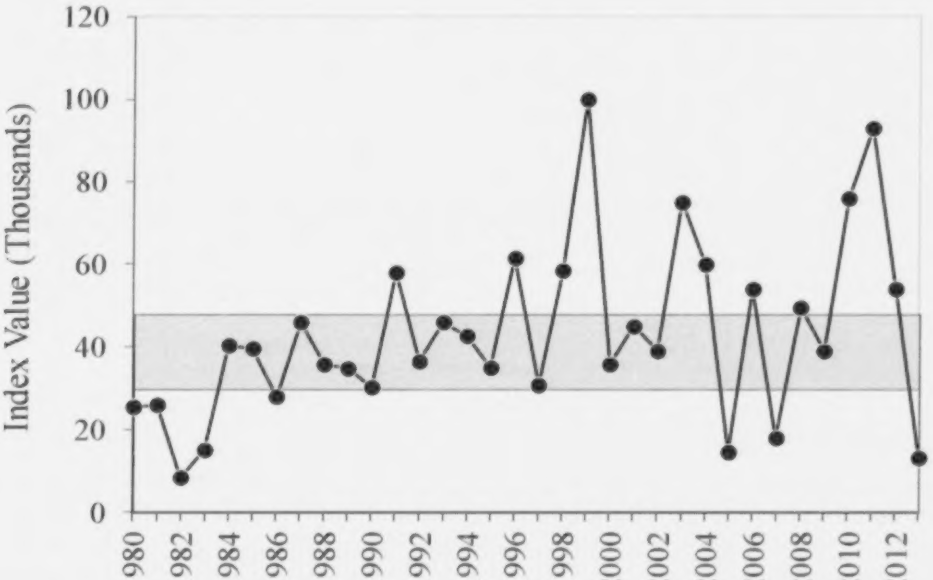

Figure 16.– Observed escapement index value by year (solid circles) and the sustainable escapement goal range of 30,000 to 48,000 index spawners (shaded area) for Cholmondeley Sound fall-run chum salmon, 1980–2013.

Transboundary Area Fisheries

Stikine River Area Fisheries

The initial preseason forecast for Chinook salmon returning to the Stikine River was approximately 22,400 fish, which was not large enough to allow for directed Chinook salmon fisheries in districts 106 and 108. Terminal run projections through mid-June ranged from 20,400 to 24,600 fish. As a result, directed commercial fisheries in districts 106 and 108 closed until the beginning of the traditional sockeye salmon fishing season on June 17, 2013.

The 2013 Stikine River sockeye salmon return was expected to be below the previous 10-year average. The preliminary forecast for total return to the Stikine River was 136,000 sockeye salmon. The 2013 forecast included approximately 60,600 Tahltan (45%), 28,400 enhanced Tuya (21%), and 46,800 wild mainstem (35%) sockeye salmon. Due to the near identical return timing of the Tahltan Lake and Tuya Lake stocks, any open fishing periods in District 108, and to a lesser extent in District 106, are determined by the inseason abundance estimate of the Tahltan Lake return. Typically, the Tahltan Lake and Tuya Lake sockeye salmon run timing peaks in statistical week 27 (June 30–July 6) through the districts 106 and 108 fisheries. During an average Tahltan Lake run significant numbers of sockeye salmon could be present as early as statistical week 24 (June 9–15) and as late as statistical week 31 (July 28–August 3). The 2013 returns of local area sockeye salmon stocks were expected to be average.

The District 106 and 108 drift gillnet fishery opened for an initial two-day opening on Monday, June 17 (week 25). Surveys of the gillnet fleet did not indicate an abundance of sockeye salmon significantly above the preseason forecast and no additional fishing time occurred. The updated assessment for Chinook salmon returning to the Stikine River was 23,000 large adults, and the escapement was expected to be within the goal range of 14,000 to 28,000 fish. The fisheries opened for two days on June 24 (week 26). Surveys of the fleet indicated above average harvest and below average effort, so a 24-hour extension occurred. The District 6 and 8 drift gillnet fisheries continued to open for at least three days weekly through late July (Figures 17 and 24). Management emphasis switched to pink salmon in late July and openings were generally four or five days weekly through August (Figures 17 and 24). In late August, management focus switched to coho salmon and the fisheries were open for 3–4 days weekly through the remainder of the fisheries. The number of boats participating in the fisheries was below average early in the season and near average from late July (week 30) through the end of the season (Figure 18 and 25).

During the 2013 season, 474,551 pink salmon, 49,223 sockeye salmon, 94,260 chum salmon, 160,659 coho salmon, and 2,202 Chinook salmon were harvested in the District 106 drift gillnet fishery (Table 6). Although there were no directed Chinook salmon fisheries early in the season, catches were generally above average from mid-June to early August (Figure 19). Sockeye salmon catches were well below average throughout the season (Figure 20) and the total sockeye salmon catch of 49,223 fish was only about half of the recent ten-year average. Catches of coho salmon were above average in most weeks, and the overall harvest exceeded the recent ten-year average of 134,000 fish (Figures 21). Pink salmon catches were also well above average throughout the season (Figure 22), and the overall harvest was the largest since 1999. Chum salmon catches were below average in nearly all weeks (Figure 23).

In the District 108 drift gillnet fishery, 116,026 pink salmon, 20,609 sockeye salmon, 103,365 chum salmon, 43,669 coho salmon, and 10,817 Chinook salmon were harvested in 2013 (Table 7). Although there were no directed Chinook salmon fisheries early in the season, catches were above average from mid-June to early August (Figure 26). Sockeye salmon catches were well below average throughout the season (Figure 27) and the total sockeye salmon catch of 20,609 fish was only 37% of the recent ten-year average. Catches of coho salmon were well above average from late July to early September, and the overall harvest exceeded the recent ten-year average of 31,000 fish (Table 7, Figure 28). Pink salmon catches were also well above average most of the season and the overall harvest was more than double the recent ten-year average (Figure 29). Chum salmon catches were below average in nearly all weeks of the fishery (Figure 30).

Table 6.– Weekly salmon catch in the Alaskan District 106 commercial drift gillnet fisheries, 2013. Catches do not include Blind Slough terminal area harvests.

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Days	Boat Days
25	16-Jun	515	4,211	2,711	1,044	3,369	36	2	72
26	23-Jun	180	6,013	3,611	3,923	4,160	41	3	123
27	30-Jun	433	9,173	8,014	20,961	17,091	35	4	140
28	7-Jul	283	8,514	8,155	13,990	11,856	45	3	135
29	14-Jul	366	9,360	8,616	29,540	18,751	51	3	153
30	21-Jul	148	5,186	6,596	28,349	10,324	63	3	189
31	28-Jul	152	3,876	9,825	80,114	14,773	63	4	252
32	4-Aug	54	1,432	8,335	66,402	3,911	69	4	276
33	11-Aug	16	808	11,379	94,250	4,120	60	5	300
34	18-Aug	4	408	11,962	89,598	1,989	63	5	315
35	25-Aug	13	159	14,060	32,882	1,788	59	5	295
36	1-Sep	6	50	17,004	11,363	749	70	4	280
37	8-Sep	10	21	27,911	1,997	703	86	4	344
38	15-Sep	17	9	16,849	133	457	61	4	244
39	22-Sep	5	1	4,232	5	124	32	4	128
40–41[a]	29-Sep	0	2	1,399	0	95	11	5	31
Total		2,202	49,223	160,659	474,551	94,260	146	62	3,276
2003-2012 Average		1,991	97,452	134,036	272,101	192,618	155	48	2,746
2013 as % of Average		111%	51%	120%	174%	49%	94%	129%	119%

[a] Opening with fewer than three permits, confidential information so data combined in catch table.

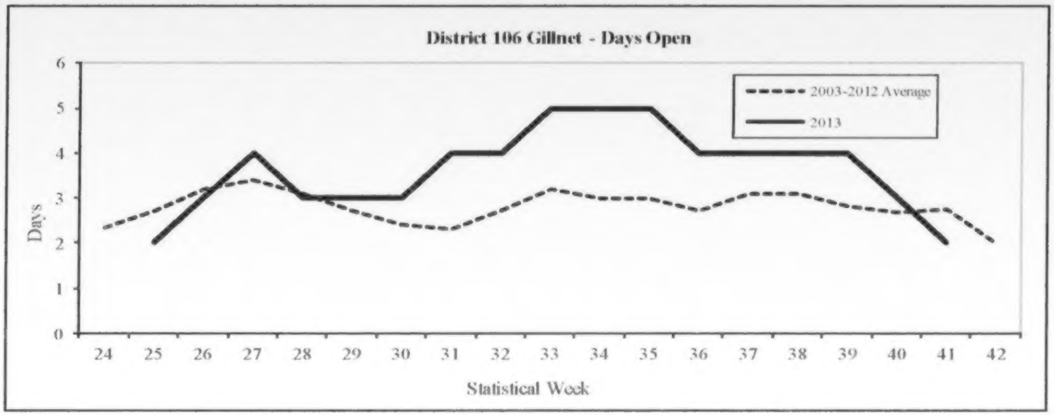

Figure 17.– Days open by week in the District 106 drift gillnet fishery, 2013.

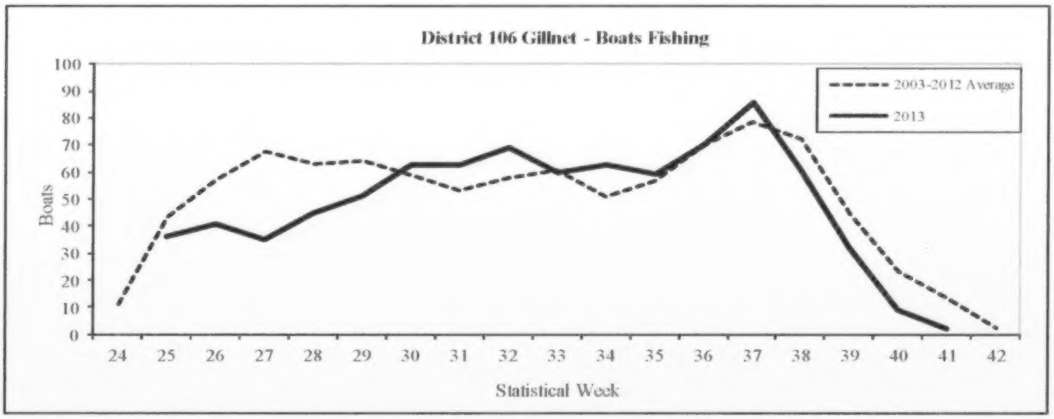

Figure 18.– Number of boats fishing by week in the District 106 drift gillnet fishery, 2013.

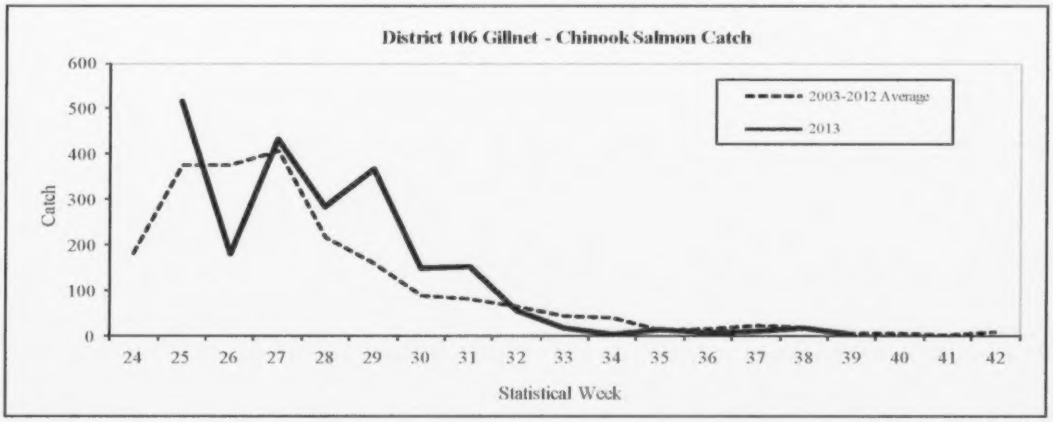

Figure 19.– Chinook salmon catch by week in the District 106 drift gillnet fishery, 2013.

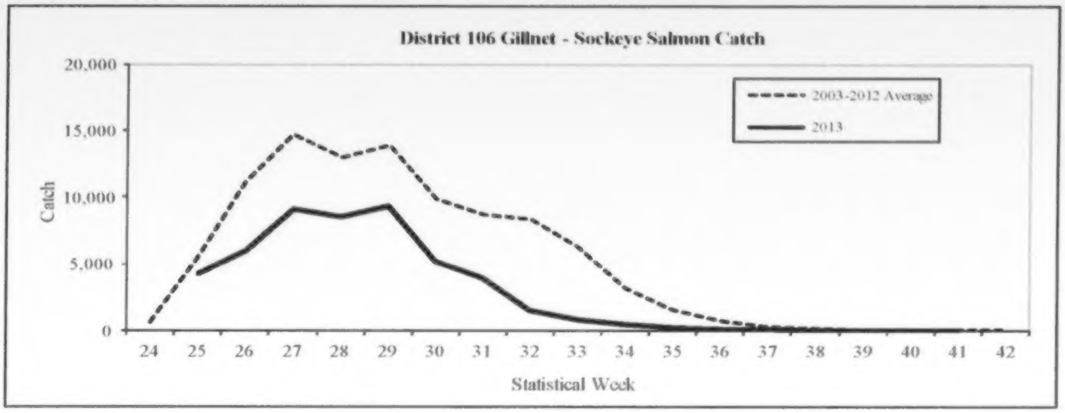

Figure 20.– Sockeye salmon catch by week in the District 106 drift gillnet fishery, 2013.

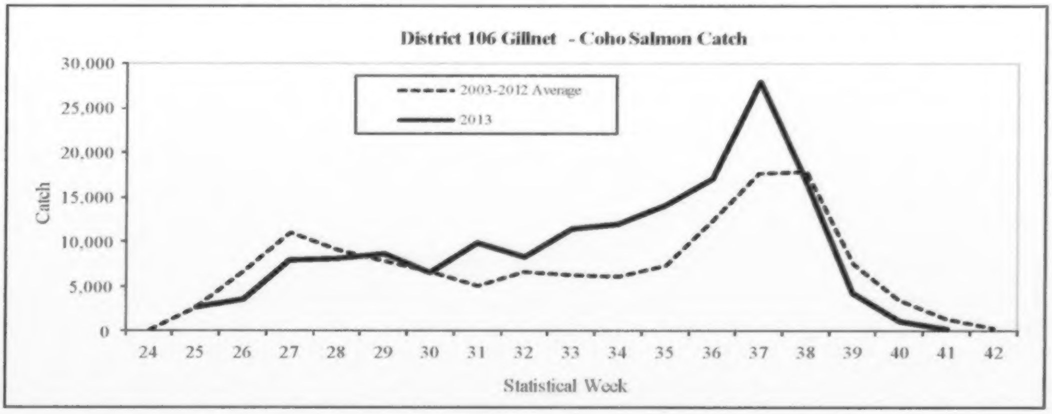

Figure 21.– Coho salmon catch by week in the District 106 drift gillnet fishery, 2013.

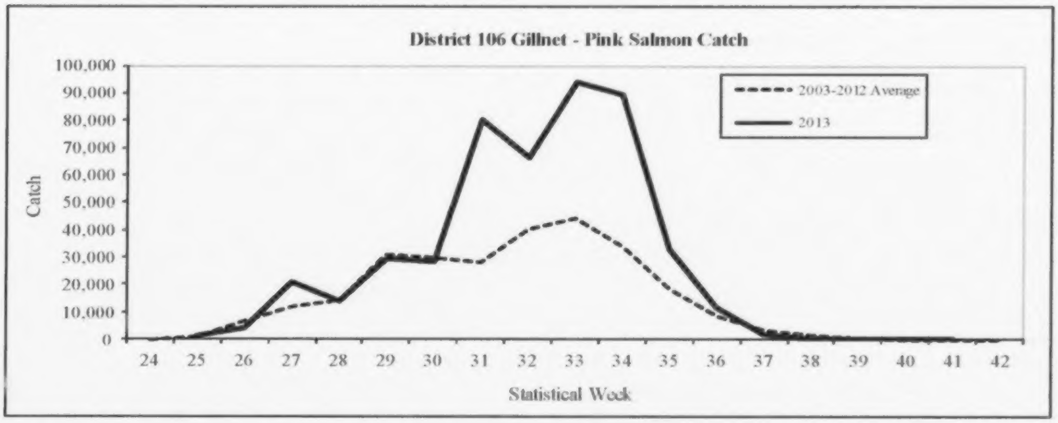

Figure 22.– Pink salmon catch by week in the District 106 drift gillnet fishery, 2013.

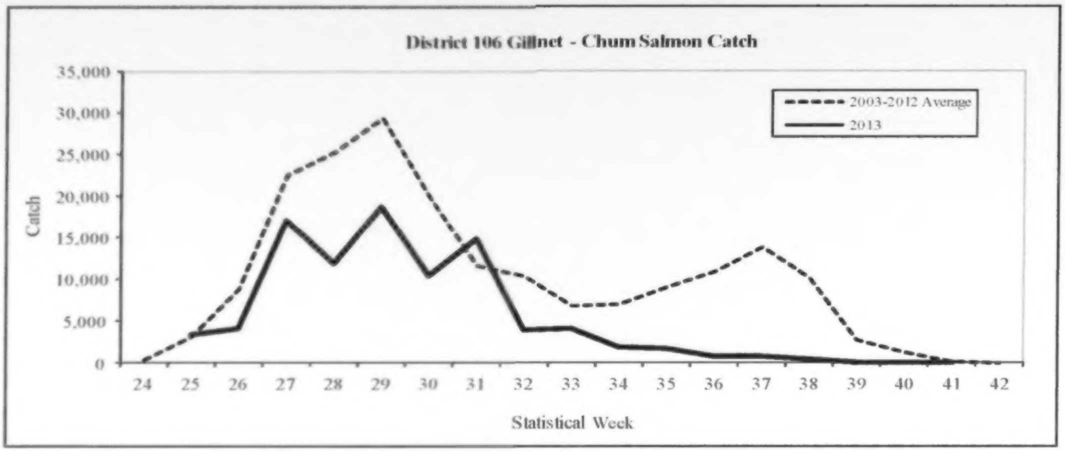

Figure 23.– Chum salmon catch by week in the District 106 drift gillnet fishery, 2013.

Table 7.– Weekly salmon catch and effort in the Alaskan District 108 directed sockeye salmon commercial drift gillnet fishery, 2013[a].

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Days	Boat Days
25	16-Jun	3,076	1,832	192	1	145	51	2	102
26	23-Jun	3793	5238	423	49	517	44	3	132
27	30-Jun	2,150	4,596	404	254	1,915	25	4	100
28	7-Jul	976	2,571	438	1,621	6,785	28	3	84
29	14-Jul	414	2,966	515	4,176	23,553	38	3	114
30	21-Jul	136	1,562	787	5,043	23,563	59	3	177
31	28-Jul	120	879	2,622	32,882	26,583	65	4	260
32	4-Aug	49	523	4,008	37,977	9,373	55	4	220
33	11-Aug	29	295	5,219	25,160	8,850	53	5	265
34	18-Aug	18	99	5,588	7,199	1,124	49	5	245
35	25-Aug	35	35	6,499	1,082	683	42	5	210
36	1-Sep	15	11	7,990	488	173	43	4	172
37	8-Sep	2	2	4,077	84	63	30	4	120
38	15-Sep	3	0	3,359	10	18	26	4	104
39	22-Sep	0	0	412	0	1	5	4	20
40	29-Sep	1	0	1,136	0	19	3	3	9
Total		10,817	20,609	43,669	116,026	103,365	127	60	2,334
2003-2012 Average		11,532	55,543	31,062	48,476	147,233	144	54	2,523
2013 as % of Average		94%	37%	141%	239%	70%	88%	111%	92%

[a] The 2013 District 108 drift gillnet catch and effort, as well as the 2003-2012 averages, are for the directed sockeye salmon portion of the fishery only. There was no directed Chinook salmon fishery in 2013.

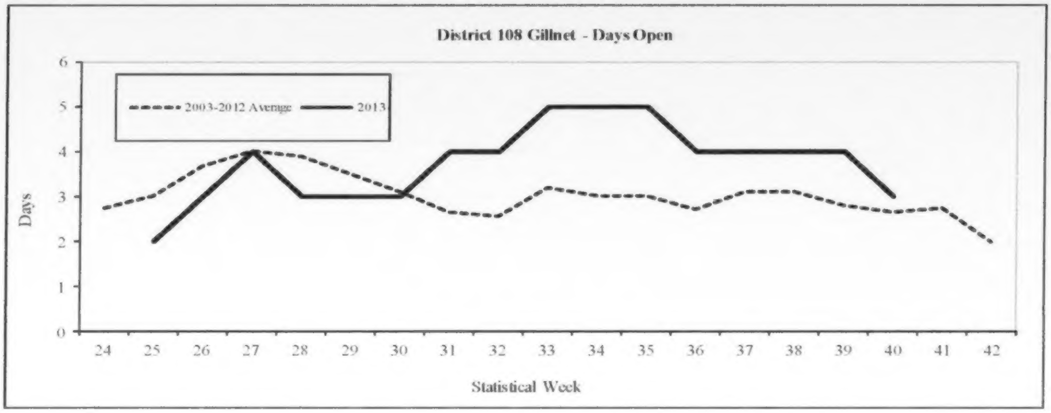

Figure 24.– Days open by week in the District 108 drift gillnet fishery, 2013.

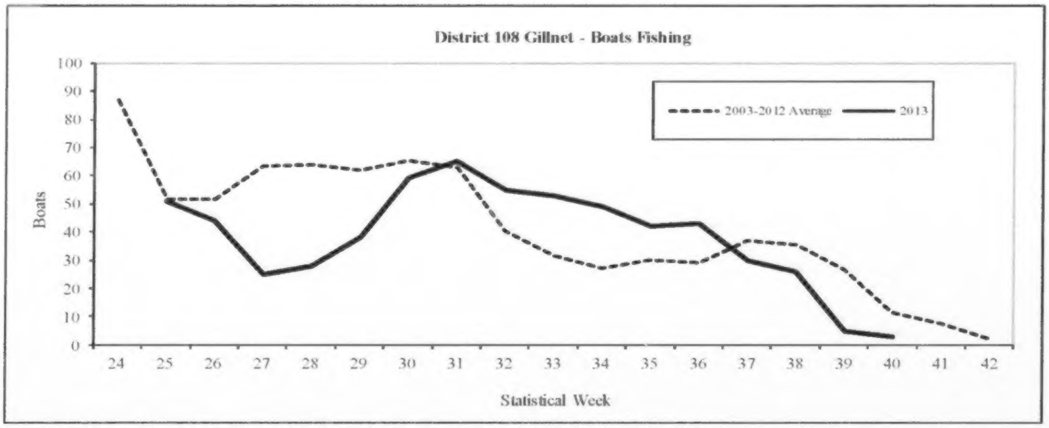

Figure 25.– Number of boats fishing by week in the District 108 drift gillnet fishery, 2013.

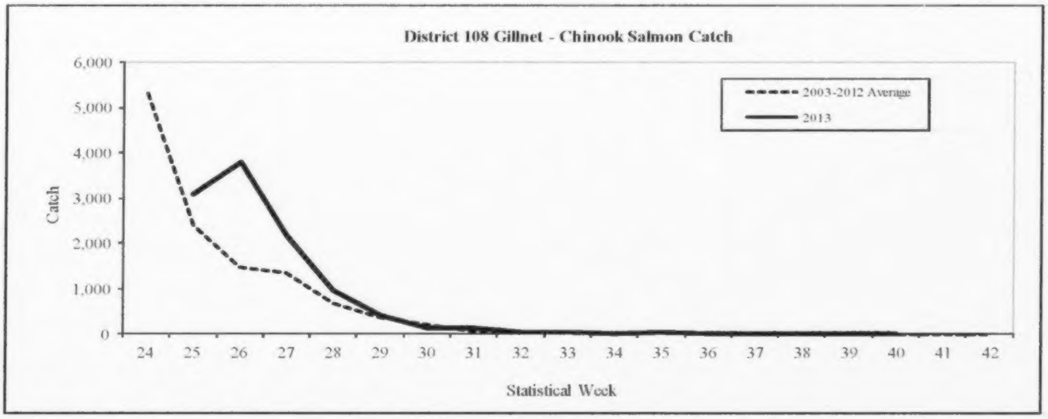

Figure 26.– Chinook salmon catch by week in the District 108 drift gillnet fishery, 2013.

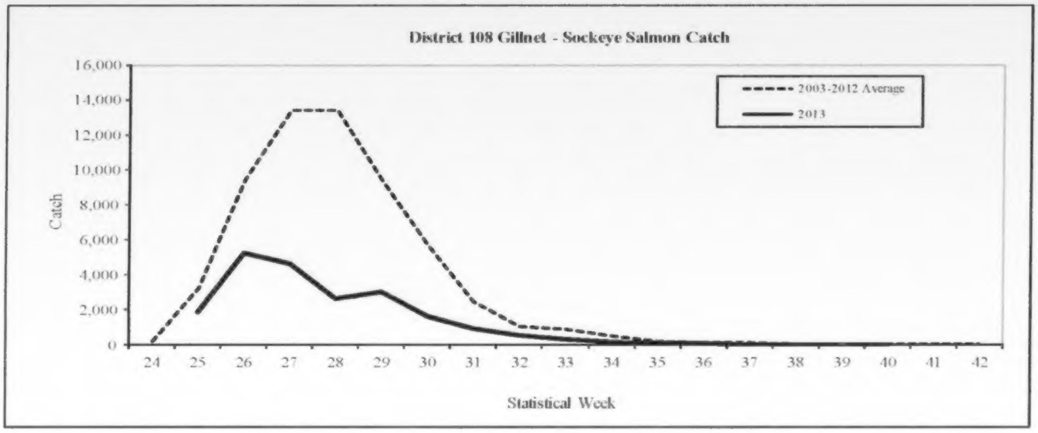

Figure 27.– Sockeye salmon catch by week in the District 108 drift gillnet fishery, 2013.

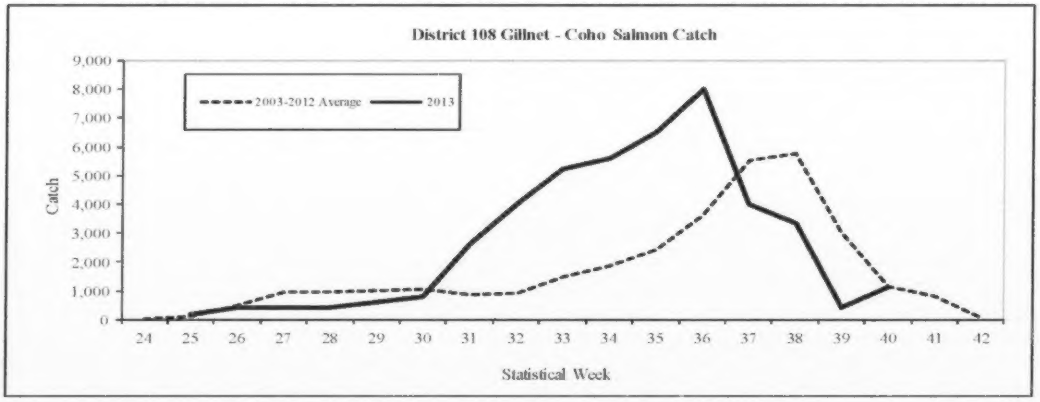

Figure 28.– Coho salmon catch by week in the District 108 drift gillnet fishery, 2013.

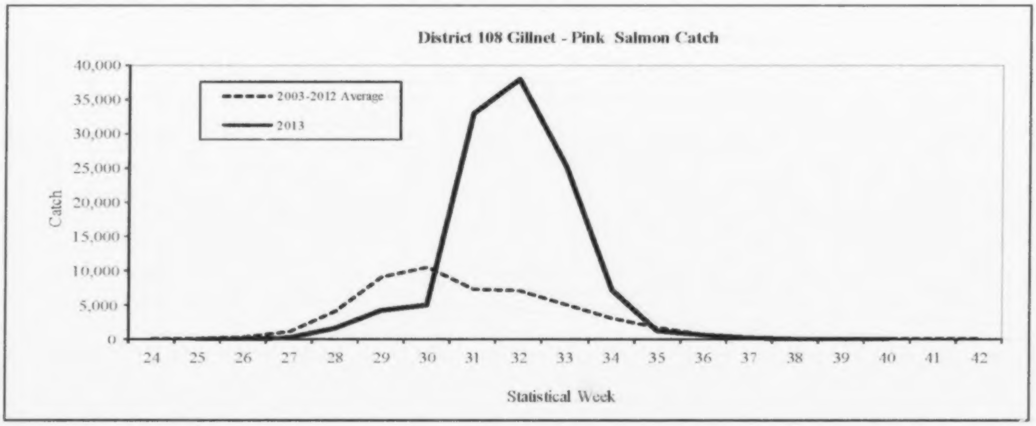

Figure 29.– Pink salmon catch by week in the District 108 drift gillnet fishery, 2013.

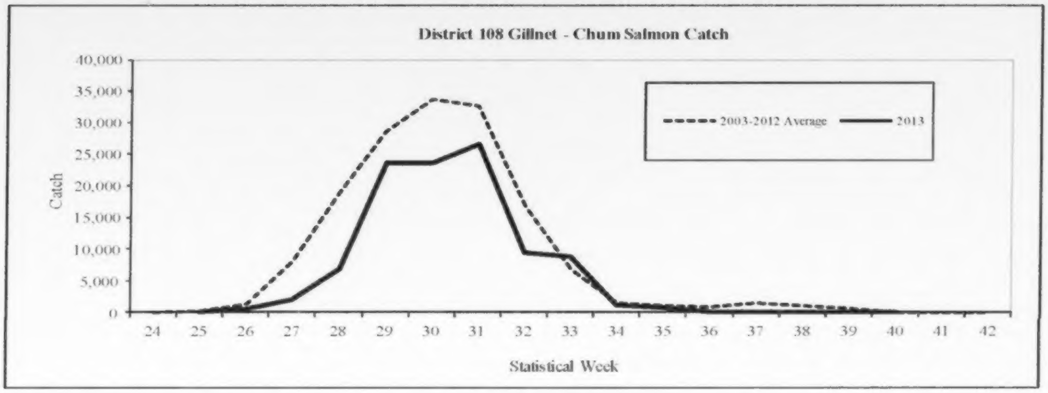

Figure 30.– Chum salmon catch by week in the District 108 drift gillnet fishery, 2013.

The weekly forecasts of run size and total allowable catch for Stikine River sockeye salmon as determined in-season by the Stikine Management Model, as well as the preliminary post season Stikine River sockeye salmon run reconstruction, were not available at the time this report was submitted.

Taku River Area Fisheries

The escapement goal range for large Taku River Chinook salmon is 19,000 to 36,000 fish with a point goal of 25,500 fish. The PST established base level catches of 1,500 and 3,500 large Chinook salmon for Canada and the U.S., respectively, that reflect the average harvests by each country between 1985 and 2003. In years of high abundance, directed fisheries can be implemented to harvest runs in excess of escapement needs. The 2013 preseason terminal run forecast for the Taku River was 18,700 large adult Chinook salmon, which did not allow for any directed Chinook salmon fisheries in District 111.

The sockeye salmon return to the Taku River in 2013 was expected to be approximately 255,000, based on the average of Canadian stock-recruit and sibling forecasts. Douglas Island Pink and Chum, Inc. (DIPAC) forecast 240,000 enhanced sockeye salmon returning to Port Snettisham. For chum salmon, DIPAC forecast a return of 687 thousand fish to Gastineau Channel and Limestone Inlet, which was below the recent average.

The traditional drift gillnet fishery in District 111 began on Sunday, June 16, 2013 (week 25). The initial drift gillnet opening of the season in District 111 was for two days with no possibility of time extension, due to the need for Taku River Chinook salmon conservation. A six-inch maximum mesh restriction was in place and the open area was well off the Taku River flats to pass more king salmon through the fishery. Effort for the opening was 27 boats, which was significantly below the ten-year average of 44 boats. The sockeye salmon catch was near the recent ten-year average, but chum salmon catch rates were well above average, with a harvest 9,400 fish (Table 8; Figures 34 and 37). A total of 357 Chinook salmon were harvested, which was below average for the week (Figure 33).

From late June through late July (weeks 26–31) effort in the District 111 drift gillnet fishery was above average, with a peak of 162 boats fishing in week 29 (Figure 32). Catches of sockeye salmon were well above average through late July and the catch of 36,700 fish in week 29 was nearly three times the recent ten-year average (Figure 34). Enhanced Speel Arm sockeye salmon made up a significant proportion of the total harvest in District 111 throughout late July. Chum salmon catches also greatly exceeded recent averages and approximately 700,000 fish were harvested from late June to late July (Figure 37). Most of the summer-run chum salmon harvest in District 111 consists of hatchery fish returning to the Douglas Island Pink and Chum (DIPAC) hatchery in Gastineau Channel and to the DIPAC remote release site at Limestone Inlet. Chinook salmon catches were near average through the tail end of the run and few fish were caught after mid-July

(Figure 33). Pink salmon catches were below average through mid-July, but increased to above average levels in late July (Figure 36).

During August (weeks 32–35) overall effort in the fishery was near average, with four days of fishing each week, but below average numbers of boats participating (Figures 31 and 32). Early in August, a push of sockeye salmon through the Speel Lake weir satisfied the lower bound of the 4,000-13,000 sockeye salmon escapement goal range, allowing an area extension into Port Snettisham and the Speel Arm SHA, and a 24-hour extension in District 111 waters south of Circle Point. The Speel Arm SHA and Port Snettisham opened at 6:00 am Tuesday, August 6, drawing a fleet of 110 boats from nearby districts, which harvested an estimated 50,000 Snettisham Hatchery origin sockeye salmon. The catch of sockeye salmon in the traditional fishing area in District 111 was small as the majority of the fleet fished in the Speel Arm SHA. Taku River wild sockeye salmon had largely passed through the fishery by August (Figure 34). Catches of coho salmon increased rapidly in early August and catches were well above average in most weeks through late September (Figure 35). Pink salmon catches dropped sharply after an above average peak catch in late July (week 31) and were below average in most weeks for the remainder of the season. Chum salmon harvest dropped quickly in August with catches below the recent ten-year average in many of the remaining weeks of the fishery (Figure 37).

The total 2013 sockeye salmon harvest of 138,474 was 111% of the recent ten-year (2003-2012) average. Peak catches of sockeye salmon occurred in weeks 28 and 29 (early to mid-July), which was several weeks earlier than average over the past ten years (Figure 34). The total 2013 coho salmon harvest of 51,022 fish was 142% of the recent ten-year average (Figure 35). Approximately 81% of the coho salmon were harvested in Taku Inlet, which was right at the ten-year average, and 19% were harvested from Stephens Passage. Coho stocks harvested in District 111 include runs to the Taku River, Port Snettisham, Stephens Passage, and local Juneau area streams as well as Alaskan hatcheries.

The total catch of 725,604 chum salmon was 152% of the recent ten-year (2003-2012) average, and was comprised almost entirely of summer run fish (Figure 37). The summer chum run is considered to last through mid-August (week 33) and is comprised mostly of domestic hatchery fish and small numbers of wild stocks. Chum salmon returning both to DIPAC hatcheries in Gastineau Channel and to the DIPAC remote release site at Limestone Inlet contributed a major portion of the harvest, but quantitative contribution estimates are not available. Approximately 54% of the District 111 chum harvest was taken in Taku Inlet, and 46% in Stephens Passage. The harvest of 5,091 fall chum salmon (i.e. chum salmon caught after week 33) was 118% of the recent ten-year (2003-2012) average. Most of these chums are probably of wild Taku and Whiting River origin. Chum salmon escapement numbers to the Taku River are unknown; however, the numbers of fall chum passing through the fish wheels at Canyon Island were used as an index of escapement. The index of 269 chum salmon was 144% of the 2003-2012 average through 9 September. The Canyon Island fish wheel project ceased operations on September 9, 2013, the earliest end date since 1986, primarily due to the cessation of fishing and mark-recovery efforts in Canada for the mark-recapture study. Fall chum passage on the Taku River typically continues into October and historically, 39% of the Canyon Island chum salmon fish wheel catch occurs after the 2013 end date.

The 2013 District 111 pink salmon harvest of 123,283 fish was 80% of the ten-year (2003-2012) average (Figure 36). The 2013 pink salmon escapement to the Taku River was unknown; however, the number of pink salmon passing through the fish wheels at Canyon Island is used as an index of escapement. The 2011 (parent year) Canyon Island pink salmon fish wheel catch was well above average at 17,775 fish. The 2013 Canyon Island pink salmon fish wheel catch of 4,666 was 60% below the 1993-2011 odd-year average of 11,389.

A number of Chinook salmon stocks are known to contribute to the Juneau area sport fishery, including those from the Taku, Chilkat, and King Salmon rivers, and local hatchery stocks, but the major contributor of mature wild fish is believed to be the Taku River. Preliminary estimates indicate that approximately 226 of the Chinook salmon harvested in the Juneau sport fishery were of Taku River origin (based on genetic stock identification analysis (GSI) and maturity data from onsite survey data). The preliminary District 111 harvest of Taku Chinook salmon was: 356 in the drift gillnet fishery, 226 in the sport fishery, and an estimated 33 in the personal use fishery, for a total of 841, well below the base level catch of 3,500 fish.

Table 8.– Weekly salmon harvest in the Alaskan District 111 traditional commercial drift gillnet fishery, 2013[a].

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Days	Boat Days
25	16-Jun	357	1,985	1	1	9,423	27	2	54
26	23-Jun	288	8,262	8	28	68,743	61	4	244
27	30-Jun	201	11,399	57	1,415	184,085	96	3	288
28	7-Jul	123	33,188	477	9,248	217,110	147	3	441
29	14-Jul	67	36,681	562	13,041	148,520	162	2	324
30	21-Jul	57	20,477	1,380	26,827	63,111	113	3	339
31	28-Jul	64	17,906	3,680	43,767	24,977	95	4	380
32	4-Aug	14	4,615	1,595	13,676	3,207	72	4	288
33	11-Aug	15	2,462	3,903	6,729	1,337	43	4	172
34	18-Aug	6	929	6,699	7,884	1,598	45	4	180
35	25-Aug	3	361	8,555	659	1,905	38	4	152
36	1-Sep	5	169	7,728	6	1,076	44	4	176
37	8-Sep	6	28	4,485	0	250	26	3	78
38	15-Sep	4	11	9,563	2	233	25	4	100
39	22-Sep	0	1	1,942	0	27	15	4	60
40-41[b]	29-Sep	1	0	387	0	2	7	10	35
Total		1,211	138,474	51,022	123,283	725,604	214	62	3,310
2003–2012 Average		1,607	124,745	35,893	153,934	478,196	184	59	3,280
2013 as % of Average		75%	111%	142%	80%	152%	116%	105%	101%

[a] The 2013 District 111 drift gillnet catch and effort, as well as the 2003-2012 averages, are for the directed sockeye salmon portion of the fishery only. There was no directed fishery for Chinook salmon in District 111 in 2013 due to a low pre-season abundance forecast.

[b] Opening with fewer than three permits, confidential information so data combined in catch table.

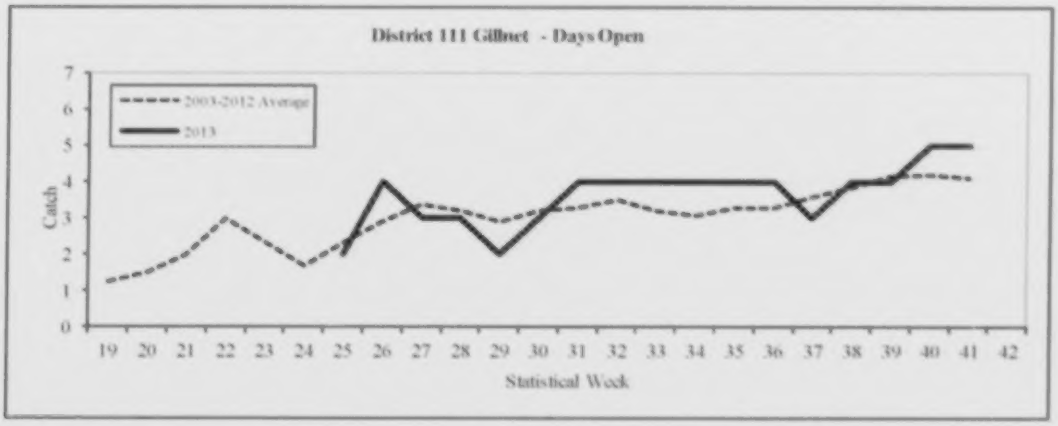

Figure 31.– Days open by week in the District 111 drift gillnet fishery, 2013.

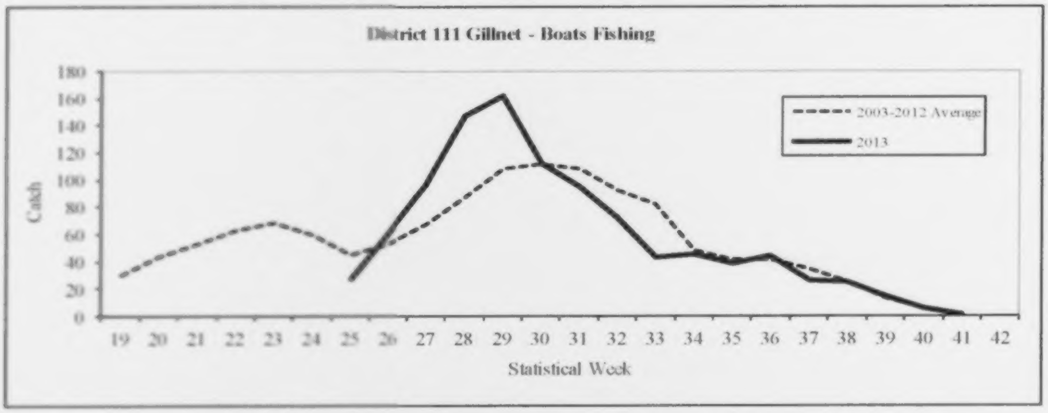

Figure 32.– Number of boats fishing by week in the District 111 drift gillnet fishery, 2013.

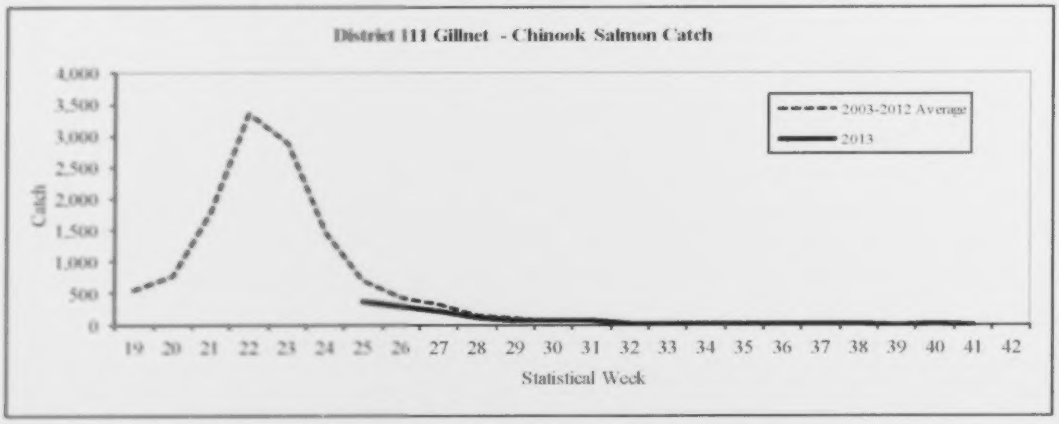

Figure 33.– Chinook salmon catch by week in the District 111 drift gillnet fishery, 2013.

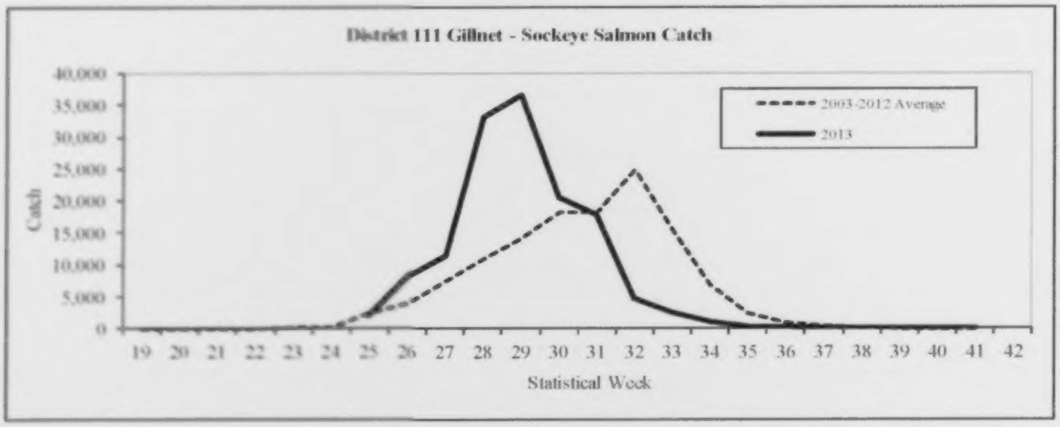

Figure 34.– Sockeye salmon catch by week in the District 111 drift gillnet fishery, 2013.

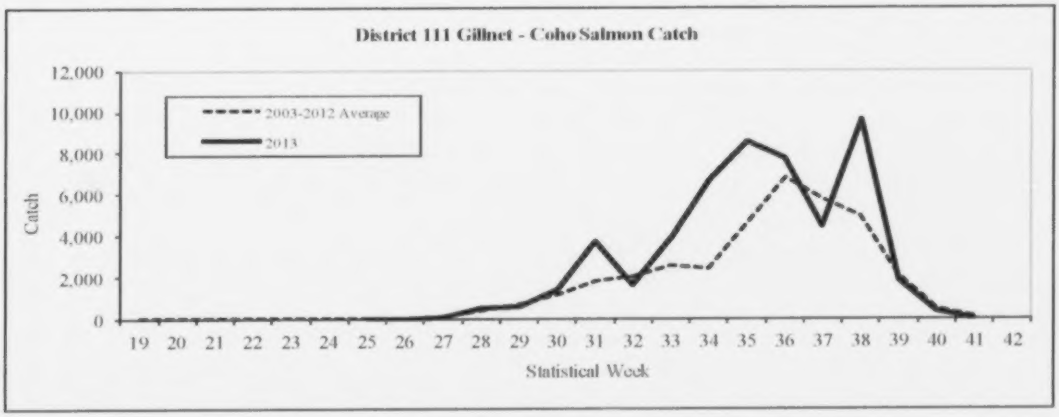

Figure 35.– Coho salmon catch by week in the District 111 drift gillnet fishery, 2013.

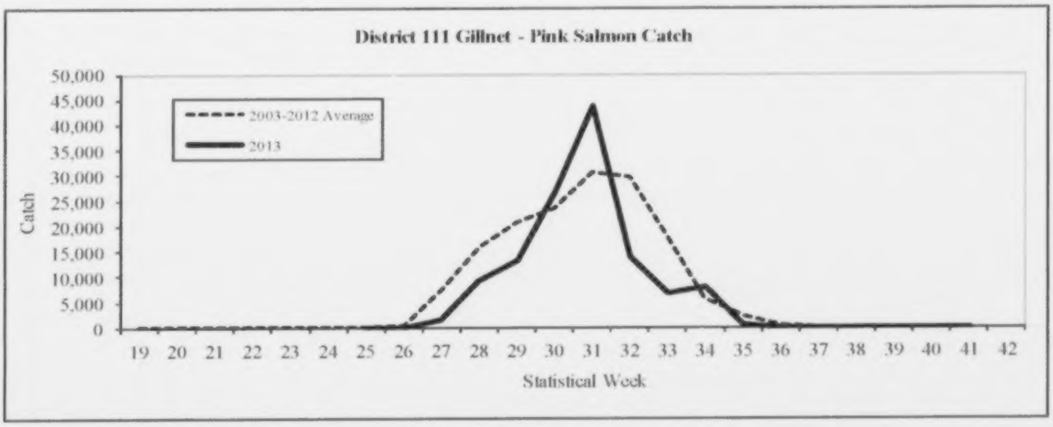

Figure 36.– Pink salmon catch by week in the District 111 drift gillnet fishery, 2013.

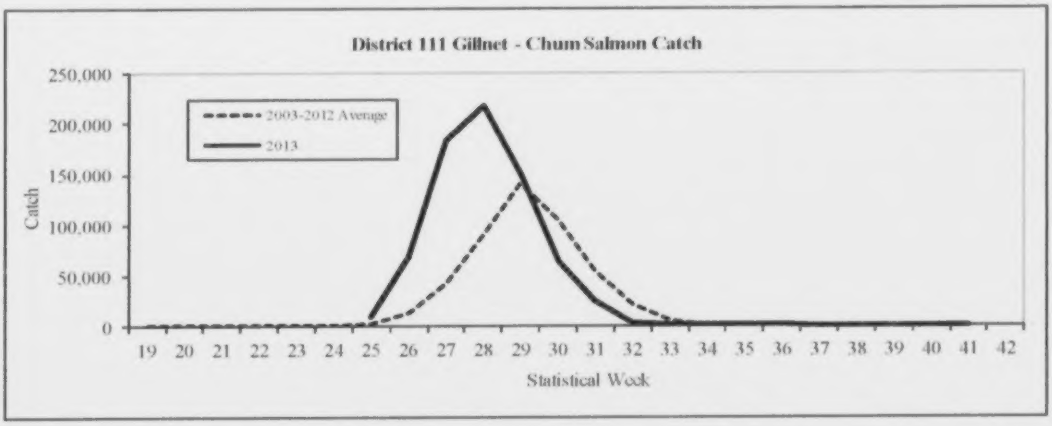

Figure 37.– Chum salmon catch by week in the District 111 drift gillnet fishery, 2013.

Transboundary River Joint Enhancement

The transport of sockeye salmon fry from the Snettisham Hatchery facility back to the Canadian lakes took place between May 29 and June 18, 2013. Approximately 3.94 million fry were released in Tahltan, Tuya, Tatsamenie and King Salmon lakes in Canada. The overall green egg to fry survival of 51.4% for brood year (BY) 2012 releases (Table 9) was below the previous five-year average survival of 65.2% (BY07-BY11) for Tatsamenie and Tahltan fry. Fry from six Tahltan Lake stock incubators tested positive this year for IHNV, accounting for a loss of approximately 1.41 million fry prior to transport/back-planting. No IHNV losses were encountered with the Tatsamenie or the King Salmon Lake stocks. After the transporting of BY12 fry back to their respective lakes, all TBR modules, incubators, and short-term fry rearing containers were broken down, cleaned, and disinfected prior to setting up to receive green eggs from BY13 egg-takes.

Brood year 2013 egg-takes were initiated on August 31 at Tahltan Lake and September 16 at Tatsamenie Lake. An estimated total of 6.0 million green eggs were collected from the two donor lakes. No BY2013 eggs were collected from the King Salmon Lake system. Tahltan Lake egg-takes were completed on September 26, and an estimated 4.27 million eggs in 12 egg lots were taken. Tatsamenie Lake egg-takes were completed on October 10 and 1.73 million eggs were collected in 5 lots. Adult sockeye salmon tissues were collected on the spawning grounds from September 2, 2013 to October 10, 2013 by contractors for DFO and shipped to the ADF&G Juneau Fish Pathology laboratory via Snettisham Hatchery as per treaty agreement.

Table 9.– Summary of numbers and survival rates of brood year 2012 sockeye salmon fry released May-June 2013. Fish were raised at Snettisham Hatchery as part of the Transboundary River Salmon Enhancement Project.

Brood stock	Release site	Number of trips	Survival rate to eyed stage	Survival rate to release	Number released
Tahltan	Tuya Lk	2	81.6%	39.3%	755,300
Tahltan	Tahltan Lk	3	66.4%	36.7%	1,349,000
Tatsamenie	Upper Tats Lk	3	95.7%	88.7%	1,419,400
Tatsamenie	Extended rearing	2	94.6%	91.8%	216,700
King Salmon L.	King Salmon L.	1	89.6	85.0	197,400
	Average/Totals	11	77.9%	51.4%	3,938,200

During the 2013 season, the ADF&G Thermal Mark Lab processed 16,764 sockeye otoliths collected by ADF&G and DFO staff as part of the U.S./Canada fry-planting evaluation program. These collections came from commercial and test fisheries in both U.S. and Canadian waters on the Taku and Stikine Rivers over an 11-week period. In addition, several escapement samples were examined. The laboratory provided estimates on hatchery contributions for 90 distinct sample collections. Estimates of the percentage of hatchery fish contributed to commercial fishery catches were provided to ADF&G and DFO fishery managers 24 to 48 hours after samples arrived at the lab.

Alsek River Area Fisheries

Although harvest sharing arrangements of Alsek salmon stocks between Canada and the U.S. have not been specified, Annex IV of the Pacific Salmon Treaty calls for the development and implementation of cooperative abundance-based management plans and programs for Alsek River Chinook and sockeye salmon. Escapement goals are in place for Chinook and sockeye salmon stocks spawning at the Klukshu River, a tributary of the Alsek River. The principle escapement-monitoring tool for Chinook, sockeye, and coho salmon stocks on the Alsek River is the Klukshu River weir, operated by Fisheries and Oceans Canada in cooperation with the Champagne-Aishihik First Nation since 1976. In 2013, Canadian and U.S. biologists adopted a new biological escapement goal range of 7,500 to 11,000 sockeye salmon through the Klukshu River weir. The current biological escapement goal range for Klukshu River Chinook salmon, adopted in February 2013, is a range of 800 to 1,200 fish.

The Department of Fish and Game manages the Alsek River commercial set gillnet fishery to achieve the agreed upon escapement goal ranges. Time and area openings are adjusted by monitoring fishery performance data and comparing it to historical CPUE. The duration of weekly fishing periods is based on fishery performance data (CPUE) and Klukshu River weir data. Historically, gillnets have often been restricted to a maximum mesh size of 6 inches through July 1 to minimize Chinook salmon harvest—the mesh restriction was lifted in 2013.

Preseason expectations were for below average sockeye salmon runs and above average Chinook salmon runs in 2013. The overall Alsek drainage sockeye salmon run was expected to be approximately 40,000 fish, which would have been about half of average. The outlook for 2013 was based on a predicted run of 9,200 Klukshu River sockeye salmon, derived from the latest Klukshu River stock-recruitment data, a Klukshu River contribution rate of 23% to the total run (based on mark-recapture results (2000-04), and run size estimates using GSI (2005-06, 2011)). Principal contributing brood years were 2008 (Klukshu escapement of 2,740 sockeye salmon) and 2009 (Klukshu escapement of 5,730 sockeye salmon); both well below the recent ten-year average escapement of approximately 14,000 fish. Based on the primary brood year escapements, the outlook for Klukshu River Chinook salmon in 2013 was for a return of 1,400 fish, slightly above the average (1,300) and above the new escapement goal range.

The 2013 Alsek River set gillnet fishery opened Sunday June 2 (week 23). The fishery was only opened for one day per week until late July and the number of boats fishing during weekly openings was slightly below the recent ten-year average throughout the season (Table 10). The total number of individual boats fishing during the season was 15, which was below the 2003–2012 average of 19 boats. Catches of Chinook salmon through late June were near the recent ten-year average (Table 10). Catches of sockeye salmon were below average in nearly all weeks of the fishery, with the exception of week 32 (early August), when the catch of 2,188 sockeye salmon was double the recent ten-year average. A total of 7,517 sockeye salmon were harvested, which was only 45% of the 2003–2012 average of 16,571 fish (Table 10). There was little effort after late July and none by late August when coho salmon harvests generally increase. Only 17 coho salmon were harvested in 2013.

The Klukshu River weir count of 3,900 sockeye salmon was below average and below the lower bound of the 7,500 to 11,000 fish escapement goal. The count of 312 early run sockeye salmon (count through August 15) and the late run count of 3,590 were both below average. The 1,261 Chinook salmon counted through the Klukshu River weir was above average and exceeded the top end of the new established goal range of 800 to 1,200 Chinook salmon.

Table 10.– Weekly fishing effort and salmon harvest for Alsek River, 2013.

Statistical	Start	Catch					Effort		
Week	Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Days	Boat Days
23	2-Jun	96	162	0	0	0	9	1	9
24	9-Jun	204	671	2	0	4	12	1	12
25	16-Jun	92	505	0	0	0	11	1	11
26	23-Jun	46	451	0	0	0	9	1	9
27	30-Jun	20	659	0	0	0	10	1	10
28	7-Jul	8	718	0	0	0	11	1	11
29	14-Jul	1	1,008	0	0	0	9	1	9
30	21-Jul	1	918	0	0	0	6	1	6
31-34[a]	28-Jul	1	2,425	15	0	1	6	11	17
35-41	25-Aug				No Effort				
Total		469	7,517	17	0	5	15	19	94
2003-2012 Avg.		487	16,571	1,471	0	5	19	34	242
2013 as % of Avg.		96%	45%	1%	0%	100%	86%	56%	39%

[a] Weeks with fewer than three permits, confidential information so data combined in catch table.

Southeast Alaska Chinook Salmon Fishery

All Gear Harvest

The Chinook Technical Committee (CTC) of the PSC determined that the Chinook abundance index for Southeast Alaska in 2013 was 1.20. This abundance index equated to an all gear harvest limit of 176,000 Treaty Chinook salmon, which is approximately 91,000 fish fewer than the 2012 quota.

This was the fifth year that the Annex IV, Chapter 3 provisions of the 2009 PST agreement were implemented. Therefore, the harvest limit for SEAK reflects a 15% reduction in allowable catch (AC) from that allowed under the 1999 PST Agreement. The preliminary estimated total Chinook salmon harvest, including Alaskan hatchery fish, by all Southeast Alaska commercial fisheries was 200,940 fish, and the preliminary sport fish harvest was 45,787, for an all-gear harvest of 246,727 (Table 11). The preliminary all-gear treaty harvest was 183,886 fish, which was 4.5% above the all-gear harvest limit of 176,000.

Table 11.– Preliminary estimated all-gear Chinook salmon harvests in 2013.

2013 Preliminary Estimated All-Gear Chinook Salmon Harvests								
Gear	Total Harvest	AK Hatchery Harvest	Wild Terminal Exclusion	Alaska Hatchery Add-on	Treaty Harvest	Quota	O/U	% O/U
Troll	149,615	17,935	240	14,414	134,960			
Total Net	51,325	39,766	27	37,627	13,626			
Total All Commercial Gear	200,940	57,701	267	52,086	148,587			
Sport	45,787	12,504	0	10,488	35,299			
Total All Gear	*246,727*	*70,205*	*267*	*62,574*	*183,886*	*176,000*	*+7,886*	*+4.5%*

Note: Annette Island and terminal area harvests are included

Table 12.– Chinook all-gear harvests in Southeast Alaska, 1987 to 2013, and deviation from the ceiling for years for which there were ceilings. Harvests are in thousands.

Year	Total Harvest	Add-on and Exclusion Harvest	Target Treaty Harvest	Treaty Harvest	Deviation Number	Deviation Percent
1987	282.4	17.1	263	265.3	2.3	0.9%
1988	279.3	22.5	263	256.8	-7.8	-3.0%
1989	291.0	21.5	263	269.5	6.5	2.5%
1990	366.9	45.9	302	321	19	6.3%
1991	359.5	61.5	273	298	25	9.2%
1992	258.8	36.8	227.4	222	-5.4	-2.4%
1993	304.1	32.9	263	271.2	8.2	3.1%
1994	264.4	29.2	240	235.2	-4.8	-2.0%
1995	235.7	58.8		176.9		
1996	236.3	81.3		155		
1997	343.0	56.3		286.7		
1998	270.6	27.4	260	243.2	-16.8	-6.5%
1999	251.0	52.2	184.2	198.8	14.6	7.9%
2000	263.3	76.8	178.5	186.5	8	4.5%
2001	265.7	78.8	250.3	186.9	-63.4	-25.3%
2002	426.5	69.4	371.9	357.1	-14.8	-4.0%
2003	439.4	59.3	439.6	380.2	-59.5	-13.5%
2004	506.2	82.2	418.3	417	-1.3	-0.3%
2005	493.1	105.0	387.4	388.1	737	0.2%
2006	435.5	75.9	354.5	359.6	5.1	1.4%
2007	404.6	76.9	259.2	327.7	68.5	26.4%
2008	244.2	71.9	152.9	172.3	19.4	12.7%
2009	293.7	66.1	176.0	227.5	51.5	29.3%
2010	284.7	54.4	215.8	230.3	14.5	6.7%
2011	357.0	66.7	283.3	290.3	7.0	2.5%
2012	295.0	53.0	205.1	242.0	36.9	18.0%
2013[1]	246.7	62.8	176.0	183.9	7.9	4.5%

[1] The actual all-gear harvest limit and deviation cannot be calculated until the CTC completes the postseason calibration.

Troll Fishery

The preseason abundance index generated for the SEAK AABM fishery in spring 2013 was 1.20, resulting in a preseason troll allocation of 129,862 treaty Chinook salmon under the harvest management plan adopted by Alaska Board of Fisheries. The accounting of treaty Chinook salmon harvested by trollers begins with the winter fishery and ends with the summer fishery. The winter troll fishery is managed for a guideline harvest level (GHL) of 45,000 non-Alaska hatchery-produced Chinook salmon, with a guideline harvest range of 43,000–47,000 non-Alaska hatchery-produced fish, plus the number of Alaska hatchery-produced Chinook salmon harvested during the winter fishery. The 2012-2013 winter troll fishery was open from October 11, 2012 through April 30, 2013 and harvested a total of 26,587 Chinook salmon. Of these, 12.7% (3,383) were of Alaska hatchery origin, of which 2,708 counted toward the Alaska hatchery add-on, resulting in a treaty catch of 23,879 (Table 13).

The spring troll fisheries target Alaskan hatchery-produced Chinook salmon and are conducted along migration routes or close to hatchery release sites. Terminal area fisheries, which begin during the spring, occur directly in front of hatcheries or at remote release sites. While there is no ceiling on the number of Chinook salmon harvested in the spring fisheries, the take of treaty Chinook salmon is limited according to the percentage of the Alaskan hatchery fish taken in the fishery. In 2013, spring troll fisheries were conducted from May 1–June 30 in a total of 32 spring areas and six terminal area fisheries. A total of 38,357 Chinook salmon were harvested in spring and terminal troll areas combined, of which 11,680 (30%) were of Alaska hatchery origin and 9,408 counted toward the Alaska hatchery add-on, resulting in a treaty harvest of 28,709 fish (Table 13).

The 2013 summer troll fishery included only one Chinook salmon retention period. From July 1–6, a total of 84,615 Chinook salmon were harvested, of which 2,872 (3.4%) were of Alaskan hatchery origin with 2,299 counted toward the Alaska hatchery add-on. The resulting treaty catch of 82,316 fish fulfilled the summer troll allocation, so a second Chinook salmon retention period was not opened. A total of 995 permits participated in the summer fishery. The total harvest for all troll fisheries in the 2013 accounting year was 149,615 Chinook salmon, of which 134,960 counted as treaty harvest.

Table 13.– Preliminary 2013 troll fishery Chinook salmon harvest by season.

Gear/Fishery	Total Harvest	Alaska Hatchery Harvest	Alaska Hatchery Add-on	Terminal Exclusion Harvest	Total Term. Exclusion/ Alaska Hatchery Add-on	Treaty Harvest
Winter Troll	26,587	3,383	2,708	0	2,708	23,879
Spring Troll[a]	38,357	11,680	9,408	240	9,648	28,709
Summer Troll						
First Period	84,615	2,872	2,299	0	2,299	82,316
Second Period	0	0	0	0	0	0
Total Summer[b]	84,615	2,872	2,299	0	2,299	82,316
Total Traditional Troll	149,559	17,935	14,414	240	14,654	134,904
Annette Is. Troll	56	0	0	0	0	56
Total Troll Harvest	149,615	17,935	14,414	240	14,654	134,960

[a] Spring troll harvest includes all terminal and Wild Terminal Exclusion harvests for year.

[b] Total summer harvest includes confiscated harvest for year.

Net Fisheries

With the exception of directed gillnet harvests of Chinook in SEAK terminal area regulatory Districts 108 and 111 targeting Chinook as provided in the Transboundary River agreement (Chapter 1), harvests of Chinook salmon in the net fisheries are primarily incidental to the harvest of other species and only constituted a small fraction (<1.0%) of the total net harvest of all species.

For the Taku River, the 2013 preseason terminal run forecast of 18,500 large adult Chinook salmon was below the lower bound of the escapement goal range of 19,000-36,000 fish and provided no AC for directed fisheries. Due to the poor forecast and concern over achieving the minimum of the escapement goal range, a non-lethal ADFG/DFO assessment project was conducted inriver for the first time. Instead of harvesting the 1,400 fish provided by the Pacific Salmon Treaty for assessment purposes, the two agencies operated drift tanglenets in the traditional Canadian inriver fishing grounds. Fish captured in this effort were sampled for tags that were placed on Chinook salmon captured downriver in the Canyon Island fish wheel project. Any untagged fish were additionally tagged to boost the overall event 1 release and then later on the spawning grounds fish were sampled for event 2 information used in part to generate a final estimate of escapement. An insufficient number of tags were recaptured in the tangle nets to provide an inseason estimate of run strength; however, this effort produced 60% of the total large fish released as part of event 1. Recovery rates on the few tags recovered on the spawning grounds suggested that handling mortality was similar between fish captured and tagged using fish wheels and drift gillnets. Regardless, too few tags were recovered on the spawning grounds to generate an estimate of large Taku Chinook escapement and the expanded peak aerial survey had to be used to estimate a large escapement of 17,794 (SE=4,827).

The preseason terminal run forecast of 22,400 large Stikine Chinook salmon did not result in a U.S. AC. Inseason forecasts ranging between 20,300 and 24,900 large Stikine Chinook salmon were similar to the preseason forecasts and did result in ACs or ACs large enough to prosecute directed sport or commercial fisheries. The initial sockeye salmon gillnet opening was postponed by one week due a lower than average sockeye salmon forecast, continued low inseason forecasts for Stikine Chinook salmon, and to the very early timing of the potential opening. Area restrictions were implemented during the initial opening gillnet opening in District 108 due to continued Stikine Chinook salmon concerns. The District 108 commercial gillnet harvest from statistical weeks 25 through 29 was 455 fish based on GSI estimates. The final U.S. harvest of large Stikine Chinook salmon through week 29, including the federal Stikine subsistence fishery, was 1,564 fish. The final postseason estimate of approximately 21,700 fish was not large enough to produce a U.S. AC; however, the U.S. harvest was below the base level harvest of 3,400 fish.

Preliminary harvest of treaty Chinook salmon in the Southeast Alaska seine fisheries was 6,706 fish.

Recreational Fisheries

The preseason abundance index generated for the SEAK AABM fishery in spring 2013 was 1.20, resulting in a preseason sport allocation of 32,466 treaty Chinook salmon under the harvest management plan adopted by Alaska Board of Fisheries. Based on this pre-season AI and the SEAK King Salmon Management Plan, a resident sport fish angler was allowed to use two rods from October through March, and the bag and possession limit for all anglers was one king salmon 28 inches or greater in length. The nonresident harvest annual limit was three king salmon 28 inches in length from January 1 through June 30; two king salmon 28 inches or greater in length from July 1 through July 15; and one king salmon 28 inches or greater in length July 16 through December 31.

The 2013 recreational fishery had an estimated preliminary harvest of 45,787 Chinook salmon, of which 35,990 counted as Treaty harvest. The final total and Treaty harvest in the sport fishery for 2013 will be available in late fall of 2014. Comparisons of the 2013 recreational fishery harvest with recent years indicate that the preliminary harvest of 45,787 fish is 21% below the recent five-year average and 34% below the recent ten-year average. The 2013 freshwater recreational fishery for Chinook salmon 20 inches or greater in length in the Situk River near Yakutat was initially closed due to low predicted run size of large fish. The fishery was then opened on July 16, below the Situk weir, when observed run size exceeded the mid-point of the escapement goal range. Onsite creel surveys indicated a small number (25-30 fish) large Chinook were harvested and a small number (25-30 fish) of Chinook less than 20 inches were harvested in 2013, all below the weir.

During 2013, genetic samples were collected from 4,091 large Chinook salmon (28 inches of greater in Total Length), 78 genetic samples from small Chinook salmon (under 28 inches in TL) in Terminal Harvest Areas (THAs), and 46 genetic samples were collected from small Chinook salmon harvested outside of THAs.

Southeast Alaska Coho Salmon Fisheries

Attachment B of the June 30, 1999 U.S.-Canada Agreement relating to the Pacific Salmon Treaty specifies provisions for in-season conservation and information sharing for northern boundary coho salmon. In 2013, troll CPUE in Area 6 in the early weeks of the fishery averaged 88, which was well above the highest boundary area conservation trigger of 22. The mid-July projection of region-wide total commercial harvest was greater than the 1.12 million trigger for an early region-wide troll closure, specified in Alaska Board of Fisheries regulation and the PST conservation agreement.

The 2013 all-gear catch of coho salmon was the second largest on record and totaled 3.95 million fish, of which 3.59 million (91%) were taken in commercial fisheries (Table 14). The troll catch of 2.39 million fish was 63% above the 10-year average of 1.47 million fish and accounted for 67% of the commercial catch. Average weekly power troll wild coho CPUE of 104 fish per boat-day from the second week of July through mid-September was the highest on record and 77% above the 10-year average, while overall wild stock abundance for the region was estimated at 40% above the 1982–2012 average. The purse seine harvest of coho salmon (553,500 fish) was 93% above the 10-year average while the drift gillnet harvest of 482,400 fish was 39% above average. The set gillnet harvest of 158,000 fish in the Yakutat area was 33% above the 10-year average, with 68% of the catch taken in the Situk-Ahrnklin Lagoon and 28% in the Tsiu River system. A very preliminary estimate of the Southeast Alaska sport catch (363,200 fish) was 37% above the 10-year average and the second highest sport catch on record.

Wild production accounted for 2.57 million fish (72%) in the commercial catch compared with a recent 10-year average of 1.79 million fish (80%). The hatchery percentage of the commercial catch (28%) was the highest on record. Of the estimated hatchery contribution of 1,018,000 fish, over 99% originated from facilities in Southeast Alaska. Escapement counts and estimates were within or above goal in nearly all cases throughout the region. The combined peak count of 9,211 coho salmon in the 14 surveyed streams in the Ketchikan area was well above the goal of 4,250-8,500 fish. The total escapement of 3,048 coho salmon to Hugh Smith Lake was second highest in 32 years, and the 6th consecutive escapement above the biological escapement goal range (500-1,600 spawners). The preliminary estimate of the all-fishery exploitation rate on the Hugh Smith Lake stock of 56% was below the 1982–2012 average of 63% but slightly above the recent 10-year average (54%). The estimated total run size of 6,929 adults was the 2nd highest on record and well above the long-term average of 4,021 adults.

Marine survival was near the 30-year average for northern inside indicator stocks (15%), but was higher for the southern inside indicator (Hugh Smith Lake) at 17% compared with a 30-year average of 13%. Exploitation rate estimates were moderate for all indicator stocks except for Ford Arm Creek, where the all-fishery exploitation rate of 78% was the second highest on record, as a result of a seine exploitation rate (29%) that was far above average (6%) combined with an Alaska troll exploitation rate (48%) that was below average (52%). In contrast, the estimated all-gear exploitation rate on the Hugh Smith Lake stock of 56% continued the trend toward lower all-gear exploitation rates for that system, from an average of 75% in the 1990s to 53% during 2000–2012. The Alaska troll fishery exploitation rate on the stock (25%) was below the historical average of 34% from 1982–2012 and the peak decade average of 41% in the 1990s. The Alaska troll fishery exploitation rate on the Auke Creek stock of 32% in 2013 was above the 10-year average of 25% and the long-term average of 29%. The all-gear exploitation rate on that stock was estimated at 42% compared with a long-term average of 40% and a 10-year average of 37%.

The 2013 region-wide summer troll coho fishery began on July 1. There was no mid-season closure and the fishery was extended for 10 days past the September 20.

Table 14.– Coho salmon harvest in Southeast Alaska in 2013 by gear type (preliminary).

Gear Type	Harvest
Troll	2,393,800
Purse Seine	553,500
Drift Gillnet	482,400
Set Gillnet	158,000
Sport (marine and freshwater)	363,200
Total	3,950,900

Preliminary 2013 Chinook and Coho Salmon Fisheries in Washington and Oregon

This report describes the conduct of United States (U.S.) fisheries of interest to the Pacific Salmon Commission (PSC) that occurred during 2013 in the area north of Cape Falcon, Oregon and south of the U.S./Canada border. These fisheries were conducted under pre-season management plans that were consistent with Annex IV of the Pacific Salmon Treaty (PST, 2008) including obligations defined within Chapter 3 for Chinook individual stock based management regimes (ISBM) and Chapter 5 for Southern Coho Management.

An overview of the Chinook and Coho salmon conservation challenges facing managers during the 2013 pre-season planning process in this region is provided. The conduct of major fisheries is described, and estimates of landed catch, where available, are compared to pre-season catch limits or expectations for Chinook (Table 15) and Coho (Table 16). For perspective, landed catches for those fisheries since 2008 are also presented. Where available, preliminary estimates of the number of Chinook or Coho salmon released by anglers in 2013 mark-selective fisheries are also presented. All estimates for the 2013 fisheries are preliminary and subject to change. Estimates of spawning escapements and abundance of Coho and Chinook stocks are not available at this time.

Preseason Planning

Pre-season planning for southern U.S. fisheries of interest to the PSC is a coordinated activity involving Tribal, State and Federal management entities, with the involvement of conservation and fishing interests. The Pacific Fisheries Management Council (PFMC) conducted a series of public meetings to consider options for ocean fishery season structures while the Tribes and States conducted government-to-government and public, open meetings throughout the region to develop and analyze alternative season structures for fisheries in the inside waters of the Columbia River, coastal Washington and Puget Sound. Participants in these various planning sessions evaluated the biological and socio-economic consequences of the alternative season structures for the outside (ocean) and inside (marine and freshwater) fisheries, including the anticipated impacts on U.S. southern origin stocks in fisheries conducted under the PST in Canada and Southeast Alaska. Agreement was reached on season structures expected to achieve conservation goals, domestic fishery objectives and legal obligations, including the PST, assuming fisheries are conducted as planned and pre-season abundance estimates are accurate.

Chinook Salmon Management

Under the 2008 Pacific Salmon Treaty Agreement, southern U.S. fisheries are subject to the Individual Stock Based Management provisions of Annex IV, Chapter 3. These provisions require the non-ceiling index for aggregated Southern U.S. fisheries on Chinook stocks not achieving their management objectives to be no greater than 60% of the levels estimated for the 1979 – 1982 base period.

Conservation obligations associated with the U.S. Endangered Species Act (ESA) for threatened and endangered Chinook salmon stocks originating from Puget Sound and the Columbia River have been more constraining to southern U.S. fisheries than PST obligations. Catch quotas for the 2013 U.S. ocean fisheries in the area north of Cape Falcon, Oregon, were defined by the impact limits on ESA-listed lower Columbia River natural tule fall Chinook stocks, ESA-listed Puget Sound Chinook stocks, and the abundance of other healthy, harvestable Chinook salmon stocks contributing to fisheries in this area. Puget Sound fishing seasons were structured to provide fishing opportunity on healthy salmon species or stocks within the impact limits defined for ESA-listed Puget Sound Chinook.

Coho Salmon Management

During the pre-season fishery planning process of 2013, Canadian fishery managers informed the U.S. that the Interior Fraser management unit was again expected to be in the *low* categorical abundance status, and U.S. fisheries were constrained to ensure that the exploitation rate on this management unit did not exceed 10.0% as defined by the PST Southern Coho Management Plan. All U.S. natural spawning Coho management units specified by the PST Southern Coho Management Plan were forecasted to be in moderate or abundant status.

The impact on natural Coho stocks of seasons and catch limits adopted for southern U.S. fisheries were predicted using the Fisheries Regulation Assessment Model (FRAM). The total exploitation rate on the Interior Fraser management unit was predicted to be 10.0% in Southern U.S. fisheries. Seasons and Coho quota levels for U.S. ocean fisheries were constrained primarily by the management objectives of ESA-listed lower Columbia River natural Coho, while limits to fisheries in northern Puget Sound and the Strait of Juan de Fuca were primarily constrained by management objectives for the Interior Fraser Coho management unit.

North of Cape Falcon Ocean Fisheries

Fisheries in this area are managed to meet conservation objectives for ESA listed stocks, natural stocks and brood stock goals for hatchery stocks. Within these stock management objectives, ocean fishing seasons are defined that meet legal requirements of Tribal treaties and allocations between Non-Tribal troll and sport fisheries. Ocean fishery seasons are also constructed to ensure a balance of opportunity for harvest with the inside fisheries. Lower Columbia River hatchery Coho and Columbia River hatchery fall Chinook have historically been the major stocks contributing to catches of ocean fisheries in the North of Cape Falcon area.

Chinook and Coho salmon catch quotas were defined for the 2013 ocean Tribal, Non-Tribal troll and sport fisheries. Ocean fishery quotas for Chinook salmon were defined by the total exploitation rate limit of 41% on ESA-listed lower Columbia River natural tule fall Chinook stocks in all fisheries. Ocean fishery quotas for Coho salmon were defined by the impact limits of ESA-listed lower Columbia River natural Coho, Interior Fraser Coho management units, and agreements that allocated the total allowable impacts between ocean and inside fisheries.

Non-Tribal Troll Fishery

Pre-season quota levels for the non-Tribal troll fisheries were 44,000 Chinook and 14,220 Coho (with healed ad-clip, hereinafter referred to as marked). The preliminary estimates of non-Tribal harvest in the 2013 North of Falcon troll fishery are 42,234 Chinook (96% of the coast-wide quota), and 6,494 Coho (46% of the coast-wide quota). Trollers harvested 24,035 Chinook in the May 1 – June 30 Chinook-only fishery and the remaining 17,654 Chinook were harvested in the all-species fishery between July 1 and September 17. The Coho catch represents harvest in a mark-selective fishery.

Tribal Troll Fishery

The Tribal troll fishery (also known as the Treaty troll fishery) was restricted due to conservation concerns for ESA listed Lower Columbia River tule Chinook and Mid-Hood Canal Chinook, setting the Chinook quota at 52,500. The Coho quota was constrained by management objectives for Interior Fraser Coho, creating a Coho quota of 47,500. The season was comprised of a May/June Chinook-directed fishery and a July 1 through September 15 all species fishery. The Chinook quota was split 50:50 between the two fisheries. The Chinook-directed fishery ran through all of May and closed on June 19 taking 118% of the 26,250 Chinook sub-quota. The Tribal trollers made 474 landings during this fishery. The all species fishery opened on July 1 with a Chinook sub-quota that was reduced by 5,757 Chinook for the overage in the first fishery and to keep the all species fishery Chinook impact neutral on the stocks of concern. This decreased the Chinook sub-quota to 20,493 Chinook. The all-species fishery closed on September 4 taking 90% of the Chinook quota and 100.2% of the Coho quota. The season concluded with a total catch of 49,417 Chinook (94% of the quota) and 47,611 Coho (100.2% of the quota). The Tribes made 1,030 landings during the ocean Tribal troll season.

Sport Fisheries

Pre-season quotas for the sport fishery were 48,000 Chinook (non mark-selective equivalent of 44,000) and 74,760 marked Coho. The 48,000 Chinook quota included 8,000 in the June mark-selective fishery and 40,000 in the non-selective fishery. Preliminary total catch estimates for the ocean sport fisheries north of Cape Falcon were 30,900 Chinook (64% of the coast-wide quota) and 50,100 Coho (67% of the coast-wide quota). A description of the resulting season structure and catches by management area follows.

U.S./Canada border to Cape Falcon

Sport salmon fishing was open for all species except Coho on May 10 – 11, May 17 – 18, and June 22 – 28 from the U.S./Canada border to the Queets River, from June 8 – 22 between the Queets River and Leadbetter Point, and from June 8 – 21 from Leadbetter Point to Cape Falcon operating under a coastwide quota of 8,000 marked Chinook. The estimate of landed catch for the coastwide mark-selective sport fishery is 2,800 Chinook (35% of the quota). The Chinook minimum size limit was 24 inches.

Preliminary estimates of Chinook retained and the percentage of legal size Chinook encountered that were retained and released in the Chinook mark-selective sport fishery, May 10 – June 28, 2013, for Areas 1-4 combined.

Chinook retained	Retained %	Released
2,800	53%	2,500

A detailed report of this fishery, including catch, effort and results of sampling and monitoring programs, will be available from the Washington Department of Fish and Wildlife in early 2014.

Columbia Ocean Area (Including Oregon)

All-species salmon sport fishing opened in Ocean Area 1 (Columbia Ocean Area) on Saturday, June 22 with a pre-season quota of 37,380 marked Coho (increased in-season to 38,380 following a transfer from the Non-Tribal troll fishery) and a guideline of 9,900 Chinook. Beginning September 1, the fishery was non-selective for Coho (remaining sub-area Coho quota – 19,600 fish – was converted at an impact neutral rate to a non-selective Coho quota of 9,785). The fishery closed on its automatic closure date, September 30. The catch estimates for Area 1 are 7,900 Chinook (80% of the guideline), 18,800 Coho during the selective portion of the fishery (49% of the revised mark-selective quota), and 1,750 Coho during the non-selective portion of the fishery (18% of the non-selective quota). An additional 600 Chinook were landed in the spring mark-selective fishery. The Chinook minimum size limit was 24 inches, with a sub-area closure in the Columbia Control Zone.

Preliminary estimates of Coho encounters (retained and released), and mark rate in the Area 1 Coho mark-selective sport fishery, June 22 – August 31, 2013.

Coho retained	Coho released	Total encounters	Mark %
18,800	14,200	33,000	57%

Westport

Ocean Area 2 (Westport) opened for all-species salmon sport fishing on Sunday, June 23 with a pre-season quota of 27,660 marked Coho (increased in-season to 29,140 following a transfer from the Non-Tribal troll fishery) and a guideline of 23,500 Chinook (decreased in-season to 20,300 following a transfer to the Non-Tribal troll fishery). Beginning September 6, the fishery was non-selective for Coho (remaining sub-area Coho quota – 12,700 fish – was converted at an impact-neutral rate to a non-selective quota of 6,350). The fishery closed on its automatic closure date, September 30. The catch estimates for Area 2 are 12,000 Chinook (59% of the revised guideline), 16,400 Coho during the selective portion of the fishery (56% of the mark-selective quota), and 3,800 Coho during the non-selective portion of the fishery (60% of the non-selective quota). An additional 1,700 Chinook were landed in the spring mark-selective fishery. The Chinook minimum size limit was 24 inches.

Preliminary estimates of Coho encounters (retained and released), and mark rate in the Area 2 Coho mark-selective sport fishery, June 23 – September 5, 2013.

Coho retained	Coho released	Total encounters	Mark %
16,400	23,600	40,000	41%

La Push

Ocean Area 3 (La Push) opened for all-species salmon sport fishing on Saturday, June 29 with a pre-season quota of 1,940 Coho (increased in-season to 2,990 following a transfer from the Non-Tribal troll fishery) and a guideline of 1,700 Chinook. The fishery closed on its automatic closure date, September 22, and reopened September 28 through October 13. The catch estimates for Area 3 during the all-species fishery are 2,300 Chinook (35% over the guideline) and 2,800 Coho (94% of the revised quota). An additional 50 Chinook were harvested in the spring mark-selective fishery. The Chinook minimum size limit was 24 inches.

Preliminary estimates of Coho encounters (retained and released), and mark rate in the Area 3 Coho mark-selective sport fishery, June 29 – October 13, 2013.

Coho retained	Coho released	Total encounters	Mark %
2,800	5,000	7,800	36%

Neah Bay

Ocean Area 4 (Neah Bay) opened for all-species salmon sport fishing on Saturday, June 29 with a pre-season quota of 7,250 marked Coho (increased in-season to 8,200 following a transfer from the Non-Tribal troll fishery) and a guideline of 4,900 Chinook. The fishery closed on its automatic closure date, September 22. The catch estimates for Area 4 are 5,900 Chinook (20% over the guideline) and 6,500 Coho (79% of the revised quota). An additional 400 Chinook were harvested in the spring mark-selective fishery. The Chinook minimum size limit was 24 inches.

Preliminary estimates of Coho encounters (retained and released), and mark rate in the Area 4 Coho mark-selective sport fishery, June 29 – September 22, 2013.

Coho retained	Coho released	Total encounters	Mark %
6,500	10,600	17,100	38%

North of Cape Falcon Inside Fisheries

Washington Coastal River Fisheries

North Washington Coastal Rivers

Net and sport fisheries directed at salmon in this region were implemented based upon pre-season, Tribal-State agreements and subject to in-season adjustments. The 2013 north coastal rivers net harvest (all by Tribal fisheries that are non-selective) includes catch from the Sooes, Quillayute system, Hoh, Queets, and Quinault rivers. The 2013 commercial Tribal net fisheries in north coastal rivers have harvested an estimated 14,200 Chinook and 43,800 Coho through November 15, 2013.

Recreational fisheries conducted in the Quillayute, Hoh and Queets river systems, included mark-selective fisheries for hatchery Chinook salmon. Recreational fisheries for Coho salmon conducted in the Quillayute River system included mark-selective components. Harvest or impact estimates for these fisheries are unavailable at this time.

Grays Harbor

Harvest for Grays Harbor includes catch from both the Humptulips and Chehalis rivers through November 15, 2013. The non-selective Tribal net fisheries in Grays Harbor, and including fisheries in the Humptulips and Chehalis rivers, harvested an estimated 2,900 Chinook salmon and 17,600 Coho salmon. Non-Tribal commercial fisheries conducted in the northern portion of Grays Harbor near the Humptulips River (Area 2C) harvested 26 Chinook salmon and 143 Coho salmon. An additional 13 Chinook salmon (mark selective) and 6,000 Coho were harvested in the Non-Tribal commercial gillnet fishery in Areas 2A & 2D. Sport fisheries conducted in the Chehalis and Humptulips rivers included mark-selective components for Coho salmon. Recreational fisheries harvest or impact estimates are unavailable at this time.

Columbia River Fisheries

Tribal and Non-Tribal net and sport salmon fisheries in 2013 occurred during the winter/spring (January – June 15), summer (June 16 – July) and fall (August – October) periods. All fisheries were constrained by impacts on ESA listed stocks. Winter/spring fisheries were primarily constrained by impacts on ESA listed upper Columbia River spring Chinook, Snake River spring/summer Chinook and wild winter Steelhead. Summer fisheries were constrained by impacts to ESA listed Snake River Sockeye. Fall fisheries were mainly constrained by impacts to ESA listed wild lower Columbia tule fall Chinook and wild lower Columbia River Coho as well as Group B Steelhead which are part of the Snake River Steelhead distinct population segment (DPS). Snake River wild fall Chinook can be a constraint to fall season fisheries, but impacts to other listed stocks generally limit fisheries first.

Columbia River salmon fisheries are developed and regulated to meet conservation standards. Fisheries are managed to operate within the impact limits set for ESA listed stocks, meet the objectives for healthy Columbia River natural stocks, and ensure brood stock needs are met for hatchery salmon. Mainstem Columbia River fisheries are also developed and managed to remain within the requirements of the 2008 – 2017 *US v. Oregon* Management Agreement which include Tribal/Non-Tribal sharing agreements.

Winter-Spring Fisheries

Non-Tribal Net

The mainstem Winter/Spring commercial fishery has operated under mark-selective fishery regulations since 2002. In 2013, winter sturgeon fisheries consisted of three fishing periods conducted during January 30 through February 7 in the area downstream of Bonneville Dam. No Chinook were landed. The winter/spring salmon season consisted of four fishing periods (47 hours total) between April 9 and May 30. The fishery occurred downstream of Bonneville Dam, with time, area, and gear restrictions in place. Landings included 1,900 hatchery spring Chinook.

Sport

Columbia River mark-selective sport fisheries began in 2001. The area below Bonneville Dam was open January 1 – April 12 and May 25 – June 15 for hatchery Chinook retention. Catch estimates include 6,000 hatchery Chinook. The area from Bonneville Dam upstream to the Oregon/Washington border 17 miles upstream of McNary Dam was open March 16 – May 6 and June 8 – 15. Catch estimates for this area total 700 hatchery spring Chinook. Kept catch in the Snake River fishery totaled 500 adult spring Chinook.

Tribal

Tribal mainstem fisheries are not mark-selective. Tribal fisheries are conducted in the mainstem Columbia River from Bonneville Dam upstream to McNary Dam (Zone 6). Platform and hook and line fisheries also occur in accordance with MOUs in the area immediately below Bonneville Dam. No spring Chinook were harvested in the commercial winter season set-line Sturgeon fishery (January 1 – 31). No Chinook were harvested in the winter gillnet fishery (February 1 – March 21). Ceremonial and subsistence (C&S) fisheries include harvest from platform, hook and line, and gillnet fisheries through Tribal permits. Commercial sales were allowed for platform and hook and line caught fish beginning June 8. Harvest estimates from C&S and commercial fisheries total 9,300 upriver spring Chinook. Fisheries are also conducted in Zone 6 tributaries and in Columbia and Snake river tributaries upstream from McNary Dam. Tributary harvest (including Snake Basin harvest) is not reported in this document.

Summer Fisheries

Non-Tribal Net

Summer season commercial fisheries are not mark-selective. Two fishing periods (16 hours total) occurred on June 16 – July 16 in the area below Bonneville Dam. Time, area, and gear restrictions were in place for all summer season commercial fisheries. Landings are estimated at 2,000 upper Columbia summer Chinook.

Sport

Summer season fisheries were mark-selective for upper Columbia summer Chinook. The area below Bonneville Dam was open for adult Chinook retention during June 16 – 30. An estimated 2,200 hatchery Chinook were kept below Bonneville Dam. The area from Bonneville Dam upstream to Priest Rapids

Dam was open for adult hatchery Chinook retention from June 16 – July 31. An estimated at 200 adult hatchery Chinook were kept in this area.

Tribal

Tribal fisheries are not mark-selective. Tribal fisheries are conducted in mainstem Columbia River from Bonneville Dam upstream to McNary Dam (Zone 6). Platform and hook and line fisheries also occur in accordance with MOUs in the area immediately below Bonneville Dam. Six weekly commercial gillnet fishing periods were conducted June 17 – July 25. Platform and hook and line fisheries also occurred throughout the season, and fish were sold commercially or retained for subsistence use. Harvest estimates total 13,300 upper Columbia summer Chinook from mainstem fisheries. Minor summer season fisheries were also conducted in some Zone 6 tributaries and in tributaries upstream of McNary Dam. Tributary harvest is not reported in this document.

Fall Fisheries

Non-Tribal Net

Fall season fisheries are traditionally not mark-selective; however, a short pilot mark-selective commercial Coho fishery did occur in 2013. Mainstem fisheries consisted of eight fishing periods during August 11 – 29 and 34 fishing periods September 15 – October 31. Time, area, and gear restrictions were in place to ensure that fishing impact limits on ESA-listed stocks were not exceeded. Harvest estimates total 87,000 fall Chinook.

Sport

Fall season fisheries were mark-selective for Coho salmon with a short mark-selective period conducted for Chinook in an 80-mile stretch in the lower Columbia River. The Buoy 10 fishery was open August 1 through December 31; Chinook retention was allowed August 1 – September 1 (with mark-selective regulations in place beginning August 23) and during September 13 – December 31 (with mark-selective regulations in place during September 13 – 25. Buoy 10 catch estimates include 23,000 Chinook and 8,000 hatchery Coho. The mainstem sport fishery from the Rocky Point – Tongue Point line upstream to Bonneville Dam was open August 1 – December 31. Mark selective rules for Chinook were in effect September 6 – 25 from Rocky Point – Tongue Point line upstream to the Lewis River. Catch estimates from this fishery include 32,000 Chinook. The mainstem sport fishery from Bonneville Dam to the Highway 395 Bridge (near Pasco, Washington) was open August 1 – December 31. Catch estimates include 14,000 fall Chinook.

Tribal

Tribal fisheries are not mark-selective. Tribal fisheries are conducted in mainstem Columbia River from Bonneville Dam upstream to McNary Dam (Zone 6). Platform and hook and line fisheries also occur in accordance with MOUs in the area immediately below Bonneville Dam. Platform and hook and line fisheries were open and allowed commercial sales through October 9. The commercial gillnet fishery consisted of eight weekly fishing periods August 19 – October 3. Preliminary harvest estimates total 228,300 adult fall Chinook. Fisheries are also conducted in some Zone 6 tributaries and in the Snake and Clearwater rivers. Harvest in tributary fisheries is not reported in this document.

Puget Sound Fisheries

Strait of Juan de Fuca Sport

Non-selective Chinook retention was allowed for sport fishing in Marine salmon Management Area 5 from February 16 – April 10 and selective retention in Area 6 from December 1, 2012 – April 10, 2013. Sport fishing regulations allowed retention of marked Chinook and marked Coho beginning July 1 in Areas 5 and

6. Chinook mark selective fishing opportunity was limited to the period through August 15. The sport fishery remained open to a Coho mark selective opportunity through September 14 in Area 5 and through September 30 in Area 6. Wild Coho retention was legal September 15 – October 31 in Area 5 and October 1 – 31 in Area 6. Chinook retention was legal in Area 5 and 6 from October 1 – 31. An additional mark-selective fishery for Chinook was open from December 1 – 31, 2013 in Area 6. The preliminary estimate for Area 5 Chinook retained for the entire opened fishing period July 1 – October 31 was 8,924. A preliminary estimate of Coho retained for the mark-selective and non-selective opened periods was 33,919.

Preliminary estimates of Chinook retained, released (legal and sub-legal size), and the legal-size mark rate in the Area 5 sport mark-selective fishery, July 1 – August 15, 2013.

Chinook retained	Chinook released	Total encounters	Mark % (legal size)
8,546	29,511	38,507	55%

Preliminary estimates of Coho retained, released and the mark rate in the Area 5 Coho mark-selective sport fishery, July 1 – September 14, 2013.

Coho retained	Coho released	Total encounters	Mark %
11,967	25,001	36,968	35%

A detailed report of this summer period sport fishery, including catch, effort and results of sampling and monitoring programs, is available from the Washington Department of Fish and Wildlife as of early 2014.

Strait of Juan de Fuca Tribal Troll (Area 4B, 5, and 6C)

During the winter Tribal troll fishery in Areas 4B, 5, and 6C (November 1, 2012 – April 15, 2013), 2,000 Chinook and 14 Coho were caught. The summer Tribal troll fishery in Areas 5 and 6C only (June 16 – September 30), 1,400 Chinook and 183 Coho were caught. The Tribal catch estimates from this area do not include catches from Area 4B during the May-September PFMC management period, which have been included in the North of Cape Falcon Tribal troll summary.

Strait of Juan de Fuca Net

Preliminary estimates of the 2013 catch in the Strait of Juan de Fuca Tribal net fisheries (no non-Tribal net fisheries in the Strait of Juan de Fuca) are 567 Chinook and 2,400 Coho salmon

San Juan Islands Net (Areas 6, 7, and 7A)

Preliminary estimates of the 2013 catch in the San Juan Island net fishery directed at Sockeye or Chum salmon total 108 Chinook and 1,087 Coho salmon for the Non-Tribal fishery. Tribal fishery landings from this area total 3,600 Chinook and 17,800 Coho.

San Juan Islands (Area 7) Sport

Marked Chinook retention was allowed in the entire area for the period December 1, 2012 – April 30, 2013. The numbers of Chinook retained and released by anglers during this fishery were estimated by an intensive sampling program and are presented in the table below. A detailed report of this fishery, including catch, effort and results of sampling and monitoring programs, is available from the Washington Department of Fish and Wildlife. The southern and southeastern (Rosario Strait) portions of this catch area were again closed July 1 – September 30 to protect Puget Sound Chinook salmon. The remaining area was open for retention of Chinook and Coho salmon from July 1 – October 31. Release of unmarked Coho salmon was required for the months of August through October. Additional sub area closures are described in the Washington State Sport Fishing Rules Pamphlet. Catch estimates and sampling information for this area for the period May 1 – November 30 are not available at this time.

Estimated Chinook retained, released (legal and sub-legal size) and the legal size mark rate in the Area 7 sport mark-selective fishery, December 1, 2012 – April 30, 2013.			
Chinook retained	Chinook released	Total encounters	Mark % (legal size)
3,494	2,960	6,454	74%

Inside Puget Sound (Areas 8-13) Sport

Mark-selective sport fisheries directed at hatchery Chinook were conducted in Area 8.1 (Skagit Bay & Saratoga Passage), Area 8.2 (Port Susan & Port Gardner), Area 9 (Admiralty Inlet), Area 10 (Seattle – Bremerton), Area 11 (Tacoma), and Area 12 (Hood Canal) during the winter (October, 2012 – April, 2013) period, and in Areas 9, 10, 11, 12, and 13 (South Puget Sound) during the summer (May – September, 2013) period.

Detailed reports of these fisheries, including retained and released encounters, effort and mark rates from sampling and monitoring programs, will be available from the Washington Department of Fish and Wildlife in the spring of 2014.

Mark-selective sport fisheries directed at hatchery Coho were conducted in Area 13 for the period July 1 to October 31, 2013.

Puget Sound Chinook mark-selective sport fisheries conducted in marine areas during the period November 1, 2012 through December 31, 2013.	
Areas	Season
8.1 & 8.2	November 1, 2012 – April 30, 2013
9	November 1-30, 2012; Jan 16 – April 15, 2013; and July 16 – August 4, 2013
10	October 1, 2012 – January 31, 2013, and July 16 – August 18, 2013
11	February 1 – April 30, 2013 and June 1 – September 30, 2013
12	February 1 – April 30, 2013 and July 1 – December 31, 2013
13	May 1 – September 30, 2013

Puget Sound Marine Net (Areas 8-13 & 7B-D)

To achieve conservation objectives for natural Puget Sound Chinook and Coho, limited marine net fishing opportunities directed at abundant returns of hatchery Chinook and both hatchery and natural returns of Coho were planned for 2013. Chinook and Coho salmon were also intercepted in fisheries directed at Pink salmon in Bellingham Bay (Areas 7B-D) and Areas 8, 10 and 11. A total of 79,000 Chinook and 170,100 Coho were caught in Puget Sound marine net fisheries (Areas 8-13 & 7B-D) during 2013.

Puget Sound Rivers Fisheries

Tribal net and non-Tribal sport fisheries directed at salmon in this region were implemented based upon pre-season, Tribal-State agreements and subject in part to in-season adjustment. The Net harvest (in Puget Sound rivers by Tribal fisheries) included catch from river systems in the Strait of Juan de Fuca, Hood Canal, and Puget Sound. A total of 25,900 Chinook and 132,600 Coho were landed in Puget Sound river net fisheries during 2013.

Mark selective fisheries directed at Chinook salmon were also conducted in the following Puget Sound rivers with PSC Chinook CWT exploitation rate indicator stocks or DIT groups:

Chinook mark-selective sport fisheries conducted in Puget Sound rivers, 2013.	
River	Season
Nooksack River	September 1 - 30
Cascade River (Skagit)	June 1 – July 15
Skagit River	June 1 – July 15
Skykomish River	June 1 – July 31
Nisqually River	January 1 – 31 and July 1 – December 31
Skokomish River	August 3 – September 25

No mark-selective sport fisheries were conducted in 2013 in any Puget Sound rivers with PSC Coho CWT exploitation rate indicator stocks or DIT groups.

Table 15.- Preliminary 2013 Landed Chinook Catches for Washington and Oregon Fisheries of Interest to the Pacific Salmon Commission (rounded to the nearest 100). [9/]

	2013			**Landed**				
	Preseason [/13]		Preliminary Landed					
FISHERIES	Total Mortality [1/]	Landed [2/]		2012	2011	2010	2009	2008
OCEAN FISHERIES								
Troll								
Neah Bay and La Push (areas 3/4/4B) [3/]	74,400	65,100	63,200	80,500	42,900	39,600	15,700	23,000
Columbia Ocean Area and Westport (area 1&2)	41,800	31,400	28,400	14,300	17,300	49,000	9,600	11,900
Sport (see text for quota information)								
Neah Bay (area 4) [4/]	6,100	5,300	6,300	5,600	3,000	3,300	2,400	1,400
La Push (area 3) [4/]	2,100	1,900	2,400	1,300	1,500	1,200	700	700
Westport (area 2) [4/]	35,000	30,100	13,700	19,500	19,100	27,000	5,000	9,600
Columbia Ocean Area (area 1) [4/]	11,900	10,700	8,500	9,100	7,200	7,200	5,200	3,700
INSIDE FISHERIES								
Sport [10/]								
Juan De Fuca (area 5&6) [5/]	13,500	9,100	8,900	13,900	9,500	9,100	10,200	4,800
San Juan Is. (area 7)	7,800	6,600	na	5,800	6,500	3,600	4,200	5,800
Puget Sound (area 8-13)	36,500	25,000	na	22,000	11,600	15,600	16,900	21,700
Puget Sound Rivers [12/]	22,700	21,600	na	23,600	18,200	15,600	14,400	15,300
North WA Coastal Rivers	na	na	na	1,700	2,300	1,300	900	800
Grays Harbor [7/]	na	na	na	4,600	3,400	2,200	900	0
Col. R. (Spring) [6/]	na	na	7,200	16,500	15,900	34,700	18,100	22,700
Col. R. (Summer) [6/]	na	na	2,400	3,000	5,300	3,000	2,500	3,100
Col. R. (Fall) (incl. Buoy 10) [6/]	na	na	69,000	46,300	44,900	30,300	24,400	22,200
Commercial [11/]								
Strait Juan de Fuca (area 4B,5,6C) Net & Troll	7,600	6,600	4,000	4,000	4,300	4,400	3,600	6,400
San Juan Is. (area 6,7, 7A)	8,100	8,000	3,800	400	5,500	6,800	1,000	100
P. Sound Marine (8-13;7B-D)	58,400	57,100	79,000	76,800	65,700	43,300	44,700	61,000
Puget Sound Rivers [12/]	51,600	51,600	25,900	39,700	35,200	36,000	33,100	40,800
North WA Coastal Rivers	na	na	14,200	12,800	11,800	9,000	10,500	7,800
Grays Harbor (area 2A-2D) [7/]	na	na	2,900	5,300	8,300	4,600	3,400	2,600
Col. R. Net (Wint/Spr.) [8/]	na	na	11,200	23,800	20,100	52,000	17,300	27,100
Col. R. Net (Sum) [8/]	na	na	15,300	9,500	25,600	20,500	14,200	10,400
Col. R. Net (Fall) [8/]	na	na	315,300	119,700	165,600	163,800	133,600	134,700

Table 15 Footnotes:

[1/] Nominal total mortality is not adjusted for adult equivalents (AEQ) and does include non-retention mortality. Total Mortality is estimated by FRAM as catch + incidental mortality, where incidental mortality = drop off + non-retention mortality.

[2/] For the ocean fisheries, this column shows the Chinook troll and recreational quotas used for 2013 pre-season fishery planning as distributed by ocean area. Pre-season total troll quota is 96,500 and recreational Chinook quota 48,000. See text for any in-season adjustments.

[3/] Includes Area 4B catch during the PFMC management period (May 1 – September 15); Area 4B Treaty troll catch outside PFMC period included under Strait Juan de Fuca net and troll.

[4/] Includes catches from the spring mark selective fishery.

[5/] 2013 catch represents July 1 – October 31 in Area 5 only, since Catch Record Card (CRC) annual estimates are not yet available.

[6/] Mainstem retained sport catch only (upstream to McNary Dam and Snake River to WA/ID border for spring, upstream to Priest Rapids Dam for summer and upstream to Hwy 395 for fall). See tables 22 – 23 in the annual Joint Staff Report regarding spring and summer Chinook and tables 29 – 31 in the annual fall report. http://wdfw.wa.gov/fishing/crc/staff_reports.html.

[7/] Includes Grays Harbor catch, as well as catch from the Chehalis and Humptulips rivers and their tributaries for sport and Chehalis and Humptulips rivers for net estimates.

[8/] Mainstem retained catch only, includes tribal C&S and commercial for all gear types and non-tribal (Columbia River mouth upstream to McNary Dam). Catch data from annual Joint Staff Reports. Winter and spring catch T7 and T18. Summer catch is from T10. Fall catch from annual fall report T20, 24 and 26.

[9/] Includes catches from mark-selective fisheries where estimates are available.

[10/] Sport catch after March 2011 is preliminary.

[11/] Includes Non-Tribal and Tribal commercial and take home, as well as Tribal Ceremonial and Subsistence for all gear types. Starting in 2012, the Copalis, Moclips, and Ozette rivers have been removed from the landed catch.

[12/] Chinook fisheries in Puget Sound rivers are modeled using the Terminal Area Management Module (TAMM), based upon FRAM output of terminal run sizes. Total Mortality is estimated in TAMM as catch + non-retention mortality.

[13/] FRAM modeled pre-season fishery impacts cover the current fishery planning year, for Chinook defined as May 1 through April 30.

Table 16.- Preliminary 2013 Landed Coho Catches for Washington and Oregon Fisheries of Interest to the Pacific Salmon Commission (rounded to the nearest 100). [6/]

FISHERIES	Preseason [9/] Total Mortality [1/]	Preseason [9/] Landed [2/]	Preliminary Landed	2012	2011	2010	2009	2008
OCEAN FISHERIES								
Troll								
Neah Bay and La Push (areas 3/4/4B) [3/]	56,700	49,500	48,800	38,500	14,200	9,600	64,200	14,000
Columbia Ocean Area and Westport (area 1&2)	24,400	12,300	5,300	3,700	8,600	5,000	29,200	2,400
Sport (see text for quota information)								
Neah Bay (area 4)	10,500	7,800	6,500	7,500	3,100	3,700	13,300	2,200
La Push (area 3)	2,500	1,900	2,800	2,200	2,100	1,200	6,900	500
Westport (area 2)	36,400	27,700	20,200	12,000	13,800	12,600	53,900	7,500
Columbia Ocean Area (area 1)	46,400	37,400	20,500	11,400	26,700	24,900	83,800	10,800
INSIDE FISHERIES								
Sport [7/]								
Juan De Fuca (area 5&6) [4/]	42,300	36,300	33,900	76,300	21,400	13,600	32,900	11,400
San Juan Is. (area 7)	700	500	na	2,200	900	600	800	200
Puget Sound (area 8-13)	28,500	27,100	na	91,500	34,500	6,000	42,000	9,700
Puget Sound Rivers	30,700	29,300	na	43,300	40,400	9,600	41,200	15,000
North WA Coastal Rivers	7,000	6,700	na	3,400	7,900	5,800	7,200	1,600
Grays Harbor [5/]	38,300	36,500	na	18,000	14,600	12,500	16,100	3,300
Columbia River Buoy 10	16,100	13,000	8,000	7,400	7,600	8,000	48,100	8,600
Commercial [8/]								
Strait Juan de Fuca (area 4B,5,6C) Net & Troll	4,800	4,700	2,600	3,600	2,800	3,300	3,300	1,200
San Juan Is. (area 6,7, 7A)	8,100	5,900	18,900	10,500	11,300	4,800	6,400	200
P. Sound Marine (area 8-13, 7B-D)	194,200	190,200	170,100	237,400	138,000	102,400	173,600	147,400
Puget Sound Rivers	79,800	78,300	132,600	132,800	101,000	64,400	92,800	85,400
North WA Coastal Rivers	77,100	75,600	43,800	39,700	82,900	97,100	126,500	50,200
Grays Harbor (area 2A-2D) [5/]	92,400	90,600	23,700	44,000	32,300	31,100	28,200	19,400

Table 17.- Mark Selective Non-Tribal Chinook and Coho Fisheries by Area and Year [1]

Selective Coho	**2013**	**2012**	**2011**	**2010**	**2009**	**2008**	**2007**	**2006**
Ocean Troll								
Cape Flattery & Quillayute (Areas 3/4)	yes	yes	yes	yes	yes	yes	yes	yes
Columbia R & Grays Harbor (Areas 1 & 2)	yes	yes	yes	yes	yes	yes	yes	yes
Ocean Sport								
Neah Bay (Area 4)	yes	yes	yes	yes	yes	yes	yes	yes
La Push (Area 3)	yes	yes	yes	yes	yes	yes	yes	yes
Grays Harbor (Area 2)	yes	yes	yes	yes	yes	yes	yes	yes
Col. R. (Leadbetter Pt. to Cape Falcon)	yes	yes	yes	yes	yes	yes	yes	yes
Inside Fisheries								
Sport								
Juan de Fuca (Areas 5 & 6)	yes	yes	yes	yes	yes	yes	yes	yes
San Juan Islands (7)	yes	yes	yes	yes	yes	yes	yes	yes
Puget Sound Sport (Areas 8-13 all year)	yes	yes	yes	yes	yes	yes	yes	yes
Puget Sound Rivers	yes	yes	yes	yes	yes	yes	yes	yes
North WA Coastal Rivers	yes	yes	yes	yes	yes	yes	yes	yes
Grays Harbor (Areas 2-2)	yes	yes	no	yes	yes	yes	no	no
Columbia River Buoy 10	yes	yes	yes	yes	yes	yes	yes	yes
Commercial								
North WA Coastal Rivers	no	no	no	no	no	no	no	no
Grays Harbor (Areas 2A-2D)	no	no	yes	yes	yes	no	no	no
Columbia River Net/ - Fall	yes	no	no	no	no	no	no	no
Strait of Juan de Fuca (Areas 4B/5/6C) Net & Troll	no	no	no	no	no	no	no	no
San Juan Islands (Areas 6, 7 & 7A)	yes	yes	yes	yes	yes	yes	yes	yes
Puget Sound Marine (Areas 8 - 13)	no	no	no	no	no	yes	no	no
Puget Sound Rivers	no	no	no	no	no	no	no	no
Selective Chinook	**2013**	**2012**	**2011**	**2010**	**2009**	**2008**	**2007**	**2006**
Ocean Troll								
Cape Flattery & Quillayute (Areas 3/4/4B)	no	no	no	no	no	no	no	no
Columbia. R & Grays Harbor (Areas 1&2)	no	no	no	no	no	no	no	no
Ocean Sport								
Neah Bay (Area 4)	yes	yes	yes	yes	no	no	no	no
La Push (Area 3)	yes	yes	yes	yes	no	no	no	no
Grays Harbor/Westport (Area 2)	yes	yes	yes	yes	no	no	no	no
Col. R./Ilwaco (Leadbetter Pt. to Cape Falcon)	yes	yes	yes	yes	no	no	no	no
Inside Fisheries								
Sport								
Juan de Fuca (Area 5&6)	yes	yes	yes	yes	yes	yes	yes	yes
San Juan Islands (Area 7)	yes	yes	yes	yes	yes	yes	no	no
Puget Sound Sport (Areas 8-13)	yes	yes	yes	yes	yes	yes	yes	yes
Puget Sound Rivers	yes	yes	yes	yes	yes	yes	yes	yes
North WA Coastal Rivers	yes	yes	yes	yes	yes	yes	yes	yes
Grays Harbor (Areas 2-2)	yes	yes	no	no	no	no	yes	yes
Columbia River Sport - Winter/Spring	yes	yes	yes	yes	yes	yes	yes	yes
Columbia River Sport - Summer	yes	yes	yes	yes	no	no	no	no
Columbia River Sport - Fall	yes	yes	no	no	no	no	no	no
Commercial								
North WA Coastal Rivers	no	no	no	no	no	no	no	no
Grays Harbor (Areas 2A-2D)	yes	yes	no	no	no	no	no	no
Columbia River Net-Winter/Spring	yes	yes	yes	yes	yes	yes	yes	yes

Columbia River Net - Summer	no	no	no	no	no	no	no	no
Columbia River Net - Fall	no	no	no	no	no	no	no	no
Strait of Juan de Fuca(4B/5/6C) Net & Troll	no	no	no	no	no	no	no	no
San Juan Islands (Areas 6, 7 & 7A)	yes	yes	yes	yes	yes	yes	no	no
Puget Sound Marine (Areas 8 - 13)	no	no	yes	yes	no	no	no	no
Puget Sound Rivers	yes	yes	yes	no	no	no	no	no

Table 17 Footnotes:

[1] "Yes" denotes that a mark selective fishery occurred, even if it only occurred in a subset of the fishing area, season, gear type, or user group.

Preliminary Review of the 2013 Washington Chum Salmon Fisheries of Interest to the Pacific Salmon Commission

This summary report provides a preliminary review of the 2013 U.S. Chum salmon fisheries conducted in the Strait of Juan de Fuca (Salmon Catch Areas 4B, 5 and 6C), the San Juan Islands (Areas 6 and 7) and the Point Roberts area (Area 7A), conducted in compliance with provisions of Chapter 6 of Annex IV of the Pacific Salmon Treaty. The harvest and abundance information provided are based on preliminary data reported through November 15 and is subject to correction and revision as additional information becomes available.

Mixed Stock Fisheries

Areas 4B, 5 and 6C

As in previous years, the Chum salmon fishery in Areas 4B, 5 and 6C was restricted to Treaty Indian fishers using gill nets. The fall Chum salmon fishery opened the week of October 6, with a schedule of six days per week and continued through November 9. A total of 1,123 Chum salmon were harvested. Including incidental catches of Chum salmon prior to the Chum-directed fishing season, 1,201 Chum salmon were harvested (Table 18). During the fall Chum fisheries in Areas 4B, 5, and 6C, there was a reported by-catch of 711 Coho, 11 Chinook, and zero Steelhead.

Areas 7 and 7A

Chum salmon fisheries in Areas 7 and 7A are regulated to comply with a base harvest ceiling of 130,000 Chum salmon, unless a critically low level of abundance is identified for those stocks migrating through Johnstone Strait ("Inside Southern Chum salmon"). Chapter 6 of Annex IV specifies that U.S. commercial fisheries for Chum salmon in Areas 7 and 7A will not occur prior to October 10. Paragraph 10 (a-b) specifies run sizes below 1.0 million as estimated by Canada as critical. For run sizes below the critical threshold, the U.S. catch of Chum salmon in Areas 7 and 7A will be limited to those taken incidentally to other species and in other minor fisheries, and shall not exceed 20,000. U.S. commercial fisheries were initiated on October 10.

Paragraph 10 (d) says that Canada will provide an estimate of Fraser River run size no later than October 22, and if that estimate is below 900,000, then the U.S. will limit its fishery to not exceed a catch of 20,000 additional Chum salmon from the day following notification. An estimated Fraser River Chum salmon run size of 1,489,000 was provided by Canada on October 15. The fishery was therefore continued without restriction through November 9. The U.S. catch between October 10 and November 9 in Areas 7 and 7A was 79,332 Chum salmon. The Non-Treaty gill net and purse seine fleets were open daily October 12, 13, 15, and then continuously October 19 through November 9. The Treaty Indian gill net and purse seine fisheries were opened on October 10 and ran continuously from October 22 through November 9.

Non-Indian reef net fisheries targeting adipose-marked Coho salmon were conducted from the end of Fraser Panel control (September 28) until September 30, with Chum salmon retention prohibited. From October 1 through November 9, reef nets were open daily with Chum salmon retention allowed. Chum salmon catch in this fishery, between October 1 and October 10, was 96 fish. Effort was low and there was no reef net fishing effort after early October.

The total 2013 Chum salmon catch by all gears in Areas 6, 7, and 7A, reported through November 9, was 80,292. Catch distribution, between Areas 7 and 7A, was 72% and 28% respectively. However, it should be noted that these catch reports may be incomplete as of the date of this report (Table 19). There were 828 Chum salmon reported caught in Areas 7 and 7A during Fraser Panel approved Sockeye and Pink salmon fisheries in August and September. During the fall Chum salmon fisheries in Areas 6, 7 and 7A, there was a reported by-catch of 8,764 Coho, 4 Chinook, and 2 Steelhead.

Puget Sound Terminal Area Fisheries and Run Strength

Preseason forecasts for Chum salmon returns to Puget Sound were for a fall Chum run totalling approximately 837,000 fish. In-season estimates as of the date of this report indicate that the returns to Puget Sound are generally well above forecast with some exceptions. The 2013 fall Chum run to Hood Canal, in particular, has been exceptional, with over 1.1 million Chum harvested in those terminal areas to date. South Puget Sound fall Chum were above forecast. Estimates are not yet available for other areas, though some Central Sound fall Chum stocks appear to be below forecast. Some Puget Sound Chum fisheries are still underway and additional in-season estimates of abundance may occur. As of the date of this report, spawning escapement surveys are in the early stages for most Puget Sound stocks and therefore escapement estimates are not yet available.

Table 18.- Preliminary 2012 Chum Salmon Harvest Report for Washington Catch Reporting Areas 4B, 5, 6C

Areas 4B, 5, 6C	
Treaty Indian, Gill Net Only	
Time Periods	GN
Through 9/21	78
9/22-9/28	0
9/29-10/5	0
10/6-10/12	616
10/13-10/19	254
10/20-10/26	9
10/27-11/2	157
11/3-11/9	87
Total	1,201

Table 19.- Preliminary 2012 Chum Salmon Harvest Report for Washington Catch Reporting Areas 6, 7, 7A

	Area 6	Area 7				Area 7A			Area 6, 7, 7A
Time Periods	GN	PS	GN	RN	Area Total	PS	GN	Area Total	Total
Through 9/28	0	701	9	0	710	116	2	118	828
9/29-10/5	0	0	0	81	81	0	0	0	81
10/6-10/12	0	11,815	125	15	11,955	95	721	816	12,771
10/13-10/19	0	27,650	2,466	0	30,116	2,810	12,461	15,271	45,387
10/20-10/26	0	7,842	853	0	8,695	0	2,367	2,367	11,062
10/27-11/2	0	5,262	126	0	5,388	530	2,119	2,649	8,037
11/3-11/9	36	944	0	0	944	0	1,146	1,146	2,126
Total	36	54,214	3,579	96	57,889	3,551	18,816	22,367	80,292
Gear Type Abbreviations: GN = Gill net; PS = Purse seine; RN = Reef net									
10/10-11/9 By-catch	Coho: 8,764		Chinook: 4		Steelhead: 2				

Preliminary Review of 2013 United States Fraser River Sockeye and Pink Salmon Fisheries

Introduction

The 2013 Fraser River Panel fishing season was implemented under Annex IV of the Pacific Salmon Treaty (PST), and guidelines provided by the Pacific Salmon Commission to the Fraser River Panel. The treaty establishes a bilateral (U.S. and Canada) Fraser River Panel (Panel) that develops a pre-season management plan and approves in-season fisheries within Panel Area waters directed at Sockeye and Pink salmon bound for the Fraser River (Figure 38). In partial fulfillment of Article IV, paragraph 1 of the PST, this document provides a season review of the 2013 U.S. Fraser River salmon fisheries as authorized by the Panel. Catch and abundance information presented is considered preliminary.

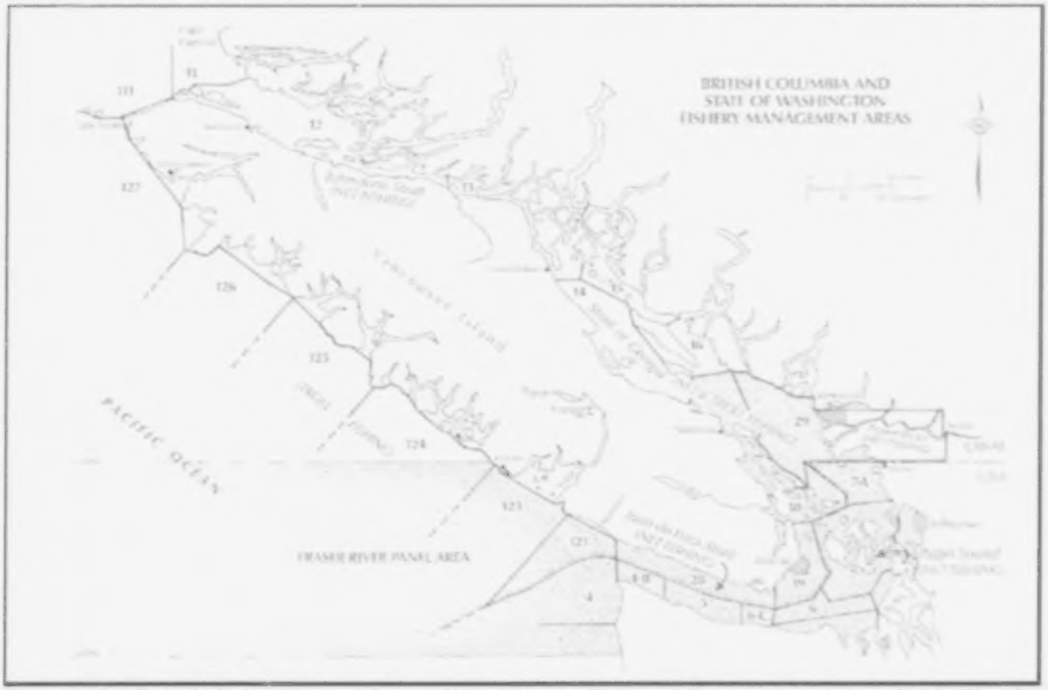

Figure 38.- British Columbia and State of Washington Fishery Management Areas, 2013. The shaded area in the figure represents the marine waters managed by the Fraser River Panel.

Preseason Expectations and Plans

Forecasts and Escapement Goals

Pre-season run size forecasts and escapement goals by stock group (run) at various probability levels were provided to the Panel by the Department of Fisheries and Oceans, Canada (DFO). Table 20 shows the 2013 agreed pre-season Sockeye forecasts based on the 50 percent probability level forecasts, which represent the mid-point of the range of possible run sizes for all the stock management groups. Table 20 also provides the escapement goals for the Sockeye management groups based on the pre-season forecasted abundance. The escapement goals for all timing groups can change in-season as the run size estimates change.

Fraser River Pink salmon returns were projected pre-season at 8,926,000 fish, with an escapement goal of 6 million fish.

Table 20.- 2013 Pre-season Fraser River Sockeye Forecasts and Escapement Goals, by Stock Group. (Esc. Plan 1)

	Early Stuart	Early Summer	Summer	Late	Total
Forecast of Abundance	211,000	253,000	3,718,000	583,000	4,765,000
Escapement Goal	108,000	141,000	1,487,200	313,000	2,049,200

Diversion

Diversion is defined as the percentage of Fraser Sockeye or Pink salmon migrating through Johnstone Strait (rather than the Strait of Juan de Fuca) in their approach to the Fraser River. Diversion through Johnstone Strait was forecasted pre-season to be 38% for Sockeye and 41% for Pink salmon.

Management Adjustment (MA) and Environmental Conditions

Management Adjustments for Sockeye salmon reflect the expected difference between escapement estimates at Mission (minus catch above Mission) and actual spawning escapements. If the adjustments are adopted by the Panel, they are added to the gross escapement goal, effectively increasing the goal for an impacted run. For 2013, Management Adjustments were modeled using forecasts of environmental conditions and return timing or median historical differences between estimates. Table 21 provides the pre-season projected MA's that were used for planning fisheries. In-season management adjustments use MA models that are based on both measured and forecasted temperatures and discharges or, for late runs, upstream migration timing.

Table 21.- 2013 Pre-Season Management Adjustments (MA)

Early Stuart		**Early Summer**		**Summer**		**Lates**	
Proportional Management Adjustment	Management Adjustment	Proportional Management Adjustment	Management Adjustment	Proportional Management Adjustment	Management Adjustment	Proportional Management Adjustment	Management Adjustment
0.57	61,600	0.46	64,900	0.10	143,000	0.67	209,200

Run Timing

Run timing is temporal information about the presence of a salmon stock in a specific time and area. Run timing is an important variable when planning fisheries and predicting run size in-season. The following Area 20 50% dates (the dates when 50% of the stock or run group is forecasted to have passed through Area 20) were predicted pre-season for the major Fraser Sockeye run groups and for Fraser Pink salmon.

Table 22.- 2013 Area 20 Pre-Season 50% Run Timing Dates

Run Group	**Area 20 50% Run Timing Date**
Early Stuart	July 5
Early Summers	July 23
Summers	August 3
Lates	August 12
Pink	August 28

U.S. Total Allowable Catch (TAC)

Pre-season, the U.S. TAC was established at 283,800 Sockeye and 752,000 Pink salmon. This difference in magnitude between the Sockeye and Pink salmon allowable catches and the overlap between Sockeye and Pink salmon run timings presented a management challenge for the U.S. to be able to access the abundant Pink salmon while staying within the Sockeye allocation.

Preseason Management Plans

During the preseason planning process, the Fraser Panel evaluates and adopts management approaches for Fraser Sockeye and Pink salmon that address conservation and harvest objectives for each major stock group. The Fraser River Panel develops fishing plans and in-season decision rules with the objective of meeting management goals. Managing Fraser River Sockeye and Pink salmon involves a trade-off between catching abundant stocks and meeting escapement objectives for less abundant stock groups.

In 2013 the Panel was faced with a situation where fishing opportunities would be constrained somewhat by Early Summer runs at the beginning of the season and Late Run stocks later in the season, and by the available Sockeye harvest to access Pink salmon. There was no TAC predicted to be available for Early Stuart Sockeye in 2013, and commercial fisheries were not contemplated on this timing group preseason.

The early entry behavior of Late Run Sockeye, observed in recent years, which results in an apparent high loss of fish prior to reaching the spawning grounds, was expected to continue in 2013, resulting in a proportional management adjustment of 67%.

Given the abundance of Pink salmon expected, and anticipated good prices, the U.S. Section decided to structure its fishery to have an early Sockeye-directed fishery, but to save some of the Sockeye TAC to access Pink salmon. The U.S. Section of the Panel developed a pre-season fishing plan that focused Sockeye fishing effort on the Early Summer and Summer Runs, but then retained enough Sockeye TAC to open Pink salmon fishing at the peak of the Pink migration to afford an opportunity to harvest most of the Pink salmon TAC. For the major U.S. fisheries this meant that Sockeye openings would likely be constrained to about a week of fishing during the second week of August. Pink salmon directed fisheries were anticipated to begin the first week of September when Pink abundance would be the highest.

In-Season Management

In-season, the Pacific Salmon Commission staff analyzes a variety of information to produce best estimates of diversion, management adjustments, run-timing, abundance, and harvest by stock group. These estimates are created using stock ID information, test fishing data, counts of escapements past Mission, harvest data and environmental information.

Run Assessment

The final in-season abundance estimates for 2013 (Table 23) indicate that Sockeye returned below preseason expectations at ~78% of the preseason forecast of 4,765,000. The majority of the reduced Sockeye return can be accounted for in the Summer run which came back at 65% of the preseason forecast but was anticipated to contribute 78% to the total forecasted Fraser Sockeye return. Quesnel Sockeye which returned at ~ 19% of the preseason forecast, account for much of the reduced Summer-run return. Early Stuart Sockeye also returned below forecast at 86% of forecasted abundance. The two remaining stock groups, returned at or above preseason forecast with Early summer run Sockeye doubling the preseason forecast, while Late run Sockeye surpassed the preseason forecast by 3%.

Pink salmon returns were much better than expected preseason, with an in-season estimated run size of a record 26,000,000 fish, relative to a preseason expectation of 8,926,000 fish (291% of expected). This Pink salmon abundance estimate resulted in a significant TAC and U.S. fishing opportunity late in the season.

Run timing for Early Stuart Sockeye was 3 days early relative to preseason forecast while the remaining stock groups were all later than preseason forecast, ranging from 1 – 7 days late. Pink salmon returned at the preseason forecasted timing.

Table 23.- Comparison of 2013 Pre-season vs. In-season Abundance Estimates for Fraser River Sockeye Salmon by Stock Group (run) and Pink salmon.

Stock Group	Pre-Season 50% Probability Forecast	In-Season Run Size Estimate	Comparison: In-Season vs. Pre-Season Forecast
Early Stuart	211,000	182,000	86%
Early Summer	253,000	550,000	217%
Summer	3,718,000	2,400,000	65%
Lates	583,000	600,000	103%
Total Sockeye	4,765,000	3,732,000	78%
Pink	8,926,000	26,000,000	291%

Table 24.- 2013 Preliminary 50% Run Timing Dates in Area 20

Run Group	Pre-season 50% Run Timing Date	In-season 50% Run Timing Date
Early Stuart	July 5	July 2
Early Summers	July 23	July 24
Summers	August 3	August 10
Lates	August 12	August 17
Pink	August 28	August 28

Season Description

Prior to July 27

Run size Changes: Early Stuart Sockeye run size was downgraded to 180,000 and migration completed.
Timing: Early Stuart Sockeye migration timing was advanced to July 2.
Diversion: Sockeye diversion has already exceeded the preseason forecast, reaching 43%.
Stock ID: Early summer run and Summer run Sockeye are now the dominant stock groups in migrating through marine areas.
Environmental Conditions/MA: In-river temperatures are rising and the Early Stuart management adjustment increased to 1.33 (0.57 preseason).
Fisheries: All Treaty Indian and All citizens fisheries remain closed.

Week ending August 3

Run size Changes: The early Stuart Sockeye runsize was updated to 182,000 and Early Summer-runs were updated to 400,000 from the 253,000 preseason forecast. Summer run Sockeye are not building in abundances in marine test fisheries as expected per the preseason forecast.
Timing: Early Stuart timing is still estimated to be July 2nd, 3 days early relative to preseason forecast. Early summer-run Sockeye also appear to be early with a 50% date of July 21 adopted by the panel (2 days early relative to preseason).

Diversion: The diversion rate for Sockeye continues to increase and is now estimated at 65%.

Stock ID: Marine test catches are now dominated by Summer run Sockeye followed by Early summers. Summer run stock groups Chilko and Quesnel, which make up the majority of the summer run forecast are not building to the proportions expected preseason.

Environmental Conditions/MA: In-river flows are ~ 25% lower than average for this date at 3,390 cms, and temperatures have increased to 19.1 C, 1.4 C higher than avg. Early summer-run MA was increased to 0.54 from the preseason forecast of 0.46.

Fisheries: Treaty Indian fisheries opened in areas 4B/5/6C on July 30 – Aug. 3. All citizens fishing remains closed.

Week ending August 10

Run size Changes: Early summer-run Sockeye runsize increased from 400,000 to 452,000. The Summer-run Sockeye runsize was updated from the preseason forecast of 3,718,000 to 2,000,000, just over half of the preseason forecast. It is too early to assess Late-run Sockeye runsize.

Timing: Early summer-run 50% timing was updated to July 22 with Summer-run timing updated from preseason forecast of August 3rd to August 8.

Diversion: The diversion rate for Sockeye is estimated at 62% and 51% for Pink salmon.

Stock ID: Early summer-run Sockeye continue to decline in marine area stock ID samples, while Chilko make up the majority of Sockeye Summer-run test catches. Pink salmon stock ID is currently dominated by Canada South Coast and Washington origin fish, with Fraser Pink making up only 4% in the most recent stock ID sample.

Environmental Conditions/MA: Record high river temperatures have increased management adjustments for Early summer-run to 0.57 and Summer-run Sockeye to 1.56 (0.09 preseason).

Fisheries: The poor return of Summer-run Sockeye along with large management adjustments has reduced US Sockeye TAC to 0. Treaty Indian fisheries that had been open in areas 4B/5/6C since July 30 were closed on August 10. All citizens fishing remains closed.

Week ending August 17

Run size Changes: The Early summer-run Sockeye runsize increased to 520,000 and Summer-run Sockeye runsize increased to 2,300,000.

Timing: Early summer-run Sockeye run timing was updated to July 24th, 2 days later than the week prior and 1 day later than preseason expectations. Summer-run Sockeye run timing was updated to August 9th.

Diversion: Fraser Sockeye diversion has increased to 71% and Pink diversion increased to 60%.

Stock ID: Summer-run Sockeye are now dominating the test catches composed primarily of Chilko, while the Quesnel run is now indicating <10% preseason forecast abundances. Late-run Sockeye are beginning to show up in increasing numbers. Fraser Pink salmon currently comprise ~23% of Pink salmon migrating through marine waters.

Environmental Conditions/MA: Record high river temperatures continue, resulting in further increases to the management adjustments. Early summer-run Sockeye management adjustment was increased to 0.72 and Summer-run to 2.35.

Fisheries: Treaty Indian and All citizens fishing are closed due to no TAC available on Summer-run Sockeye.

Week ending August 24

Run size Changes: Both Early summer-run and Summer-run Sockeye runsizes remain unchanged. It is still early to make a runsize adjustment for Late-run Sockeye. The Pink salmon runsize was upgraded to 10,000,000 from the preseason forecast of 8,926,000.

Timing: Timing for Early summer and Summer-run Sockeye remain unchanged. Pink salmon timing also remains unchanged.

Diversion: Sockeye diversion is now estimated at 90% while Pink diversion is currently at 50%.

Stock ID: Summer-run Sockeye migration is declining in marine waters and Late-run Sockeye now make up 21-58% of stock ID samples. Fraser River Pink salmon are increasing in proportion, though currently comprise only 16% of migrating Pink in Johnstone Strait and 48% in the Strait of Juan de Fuca.

Environmental Conditions/MA: No changes were made to Sockeye management adjustments this week.

Fisheries: Due to high river temperatures and diminished summer Sockeye returns, no US TAC remains for Fraser Sockeye. This week Treaty Indian fisheries targeting Pink salmon in 4B/5/6C were opened on August 24. All citizens reef nets were opened on August 24.

Week ending August 31

Run size Changes: The Early summer-run Sockeye runsize was increased to 550,000 and Summer-run Sockeye to 2,400,000. Late-run Sockeye runsize also increased to 500,000. Pink salmon runsize was increased to 16,000,000.

Timing: Migration timing of Sockeye stock groups are all getting later with Early Summer-run, Summer-run, and Early summer-run Sockeye moving to July 25th, August 10th, and August 13th respectively. The Pink salmon run timing was moved to August 29th.

Diversion: Diversion of Sockeye is presently 91% and 35% for Pink salmon.

Stock ID: Summer run Sockeye stock proportions in marine areas have increased from last week to 54-68% of stock ID samples in marine waters. Fraser Pink salmon have also increased to 56-74%.

Environmental Conditions/MA: Management adjustments for Sockeye continue to rise as high river temperatures persist. Management adjustments increased to 0.85 for Early Summer-run, 2.48 for Summer-run, and 0.91 for Late-run Sockeye.

Fisheries: Treaty Indian fisheries in Areas 4B/5/6C were open daily Aug. 25-31 and 6/7/7A were open on Aug. 25-27 and Aug. 28-Aug. 31. All citizens fisheries were open to gillnets and purse seines in Areas 7/7A Aug. 27 and 30, and reef nets on August 25 and daily August 28-31. The Iwerson Dock line closure was in effect to protect remaining Sockeye stocks due to the high in-river temperatures.

Week ending September 7

Run size Changes: Late-run Sockeye runsize increased to 600,000. All other Sockeye stock group runsizes remain unchanged. The Fraser Pink salmon runsize was updated to 26,000,000.

Timing: Early summer-run Sockeye timing is now July 24th, one day earlier than last week. Summer-run Sockeye timing remains unchanged though Late-run Sockeye was moved to August 17th. Fraser Pink 50% marine timing remains at August 29th.

Diversion: Diversion of Fraser Sockeye and Pink salmon is currently 98% and 74% respectively.

Stock ID: Summer-run Sockeye now make up ~49% of Sockeye migrating through marine waters with Late-run stocks making up the remainder. Fraser Pink salmon now dominate stock ID samples over Canada south coast and Washington Pink stocks. Currently Fraser Pink make up 80-85% of fish migrating through marine waters.

Environmental Conditions/MA: Management adjustments decreased for Early Summer-run Sockeye to 0.80 due to run timing changes. Summer-run Sockeye management adjustment is unchanged at 2.48 and Late-runs increased to 0.92 due to the continued warm river temperatures.

Fisheries: Treaty Indian fisheries in Areas 4B/5/6C were open Sept. 1-7 and Areas 6/7/7A were open Sept. 1-2, 3-5, and 6-7. All citizens fisheries were open in Areas 7/7A to purse seines and gillnets on Sept. 2 and Sept. 5. Reef nets in Area 7 were open daily. The Iwerson dock line closure was in place for both Treaty Indian and All-citizen fisheries until Sept. 3.

Week ending September 14

Run size Changes: Fraser Sockeye and Pink runsizes remain unchanged.

Timing: No changes were made to the timing of Fraser Sockeye or Pink salmon.

Diversion: Due to marine test fisheries closing down for the season, no update to diversion rates could be made.

Stock ID: Fraser Pink salmon stock proportions have continued to increase and are now 74-94% of Pink salmon in marine areas.

Environmental Conditions/MA: Management adjustments were unchanged.

Fisheries: Treaty Indian fisheries in Areas 4B/5/6C were open daily through Sept. 14th. Treaty Indian fisheries in 6/7/7A were open Sept. 8-9, 10-14 and are scheduled through Sept. 18. All citizens fisheries were open to purse seines and gillnets in areas 7/7A Sept. 9 and 13 and no further fisheries are scheduled for the season. Reef nets were open every day and will remain open because there is US TAC for Pink salmon still remaining.

Harvest

Between July 30 and Sept. 28 the United States caught a total of 19,988 Fraser River Sockeye and 4,034,600 Pink salmon in Panel area waters (Tables 25 and 26). During this time period the Treaty Indian fisheries in Areas 4B/5/6C were open for a total of 37 days, and in Areas 6/7/7A for 18 days. The All citizens fishery in Areas 7/7A was open for 34 days for reef nets and 6 days for gillnet and purse seine gear. The All citizens fishery landed 176 Sockeye salmon (illegally retained) and 2,320,506 Fraser Pink salmon. All citizens recreational fishers caught an additional 22,473 Pink in Area 5, though recreational catch estimates from other panel waters are not yet available. The Treaty Indian fishery caught 19,812 Fraser Sockeye salmon and 1,714,094 Fraser Pink salmon.

Table 25.- Preliminary estimate of 2013 U.S. catches of Fraser River Sockeye salmon in Panel area waters.

	Treaty Indian	All Citizens
Ceremonial and Subsistence (all areas)	15,680	0
Commercial Catch in Areas 4B/5/6C	4,093	0
Commercial Catch in Areas 6/7/7A	39	176
Total Catch	19,812	176
% of U.S. Catch	99.1%	0.9%

Table 26.- Preliminary estimate of 2013 U.S. catches of Fraser River Pink salmon in Panel area waters. Does not incorporate genetic stock identification (GSI) of Southern BC or Washington Pink salmon.

	Treaty Indian	All Citizens
Recreational	0	22,473
Ceremonial and Subsistence (all areas)	17,260	0
Commercial Catch in Areas 4B/5/6C	8,621	0
Commercial Catch in Areas 6/7/7A	1,688,213	2,298,033
Total Catch	1,714,094	2,320,506
% of U.S. Catch	42.5%	57.5%

C. 2013 POST-SEASON REPORT FOR CANADIAN TREATY LIMIT FISHERIES

Introduction

The chapters in Annex IV of the Pacific Salmon Treaty outline the joint conservation and harvest sharing arrangements between Canada and the U.S. for key stocks and fisheries subject to the Treaty. On December 23, 2008, Canada and the U.S. ratified new provisions for five chapters under Annex IV of the Pacific Salmon Treaty. These chapters came into effect on January 1, 2009. Chapter 4, which covers Fraser River sockeye and pink salmon, was set to expire on December 31, 2010. However, an Order in Council, and the corresponding exchange of diplomatic notes, allowed for the extension of the chapter until December 31, 2013. All management regimes under Annex IV continue to be implemented by Fisheries and Oceans Canada (DFO) for the 2013 season.

The catches reported below provide the best information available to December 1, 2013, and may change once all catch information for 2013 has been reviewed. The catches are based on in-season estimates (hailed statistics), on-grounds counts by Fisheries and Oceans Canada and independent observers, logbooks, dockside tallies, landing slips (First Nation fisheries), fish slip data (commercial troll and net), creel surveys, logbooks and observers (sport and commercial).

Annex fisheries are reported in the order of the Chapters of Annex IV. Comments begin with expectations and management objectives, followed by catch results by species, and where available and appropriate, escapements. The expectations, management objectives, catches and escapements are only for those stocks and fisheries covered by the Pacific Salmon Treaty; domestic catch allocations have been excluded. Table 54 summarizes 1996-2013 catches in Canadian fisheries that have at some time been under limits imposed by the Pacific Salmon Treaty.

Transboundary Rivers

Stikine River

Canada developed a fishing plan for Stikine River salmon fisheries based on the catch sharing and management arrangements outlined in Annex IV, Chapter 1, Paragraph 3 of the Pacific Salmon Treaty (PST), including the arrangements agreed to on January 17, 2008 for the 2009 to 2018 period. Accordingly, the 2013 management plan was designed to meet agreed escapement targets and the following harvest objectives: 1) to harvest 50% of the total allowable catch (TAC) of Stikine River sockeye salmon in existing fisheries; 2) to allow additional harvesting opportunities in terminal areas for enhanced sockeye that were surplus to spawning requirements; 3) to harvest up to 5,000 coho salmon in a directed coho fishery; and, 4) to harvest approximately 1,400 large Chinook salmon in a test fishery, conducted by the commercial fleet. As the preseason run size estimate of 22,400 Chinook was less than the PST preseason threshold run size of 28,100 large Chinook, neither Canada or the United States (U.S.) engaged in a directed net fishery. The allowable catch for the U.S. and Canada, therefore, was limited to its historical base level catches of 3,400 and 2,300 large Chinook salmon respectively. In addition, Canada was permitted to harvest 1,400 large Chinook salmon for in-season and post season run size assessments purposes.

The 2013 commercial fishing season opened on May 6 (statistical week 19) and ended August 30 (statistical week 35). From statistical weeks 19 through to 24, the commercial fishing fleet engaged in weekly Chinook salmon test fishery openings. In statistical week 25 a directed Chinook salmon fishery was prosecuted as a result of the in-season Chinook salmon run size estimate exceeding 24,500 fish (in-season threshold number used to trigger a directed Chinook salmon fishery). From statistical week 26 through to 34 a directed sockeye fishery was prosecuted followed by a directed coho fishery which occurred post statistical week 34.

Commercial gear consisted of one 135-metre (443 ft.) gill net per license holder. The maximum mesh size allowed was 204 mm (8") through June 22nd after which time the maximum mesh size was restricted to 140

Table 16 Footnotes:

[1/] Estimates of total mortality include non-retention mortality. Total Mortality is estimated by FRAM as catch + incidental mortality, where incidental mortality = drop off + non-retention mortality.

[2/] For ocean fisheries this column shows the Coho troll and recreational quotas used for 2013 pre-season fishery planning as distributed by ocean area. Pre-season total troll quota is 61,700 and recreational marked Coho quota is 74,800. See text for any in-season adjustments.

[3/] Includes area 4B catch during the PFMC management period (May 1 – September 15); area 4B Treaty troll catch outside PFMC period included under Strait Juan de Fuca net and troll.

[4/] 2013 catch represents selective fisheries July 1 – October 31 in area 5 only, since CRC annual estimates are not yet available.

[5/] Includes Grays Harbor catch, as well as catch from the Chehalis and Humptulips rivers and their tributaries for sport estimates and Chehalis and Humptulips rivers for net estimates.

[6/] Includes catches from mark-selective fisheries where estimates are available.

[7/] Sport data after March 2011 are preliminary.

[8/] Includes Non-Tribal and Tribal commercial and take home, as well as Tribal Ceremonial and Subsistence for all gear types. Starting in 2012, the Copalis, Moclips, and Ozette rivers have been removed from landed catch.

[9/] FRAM modeled pre-season fishery impacts cover the current fishery planning year, for Coho defined as January 1 through December 31.

mm (5.5"). Only one gill net was permitted throughout the course of the commercial fishery. The lower Stikine commercial fishing grounds covered the area from the international (U.S. / Canada) border upstream to near the confluence of the Porcupine and Stikine rivers and also included the lower 10 km (6 mi.) of the Iskut River.

In the upper Stikine commercial fishery, which is located upstream from the Chutine River, fishing periods generally mirrored those in the lower Stikine commercial fishery, but lagged by one week. Fishers were permitted one net however effort was low throughout the season. As in past years, the commercial fishing area was extended upstream to the mouth of the Tuya River. This action was taken in order to provide for a terminal fishing opportunity on Tuya River bound sockeye salmon, specifically at sites located upstream of the Tahltan River. For the sixth consecutive year no commercial fishing activity occurred at this site. The Tuya run, which consists entirely of sockeye produced from the Canada-U.S. Stikine enhancement program, has no spawning escapement requirement since these fish are unable to return to Tuya Lake due to several velocity barriers located in the lower reaches of the Tuya River. Tuya sockeye are released into Tuya Lake as young of the year juveniles.

The First Nation Food, Social and Ceremonial fishery (FSC) located near the community of Telegraph Creek, B.C. was active from late May to mid-August, with no time or gear restrictions imposed in 2013.

Most of the Chinook salmon sport fishing effort in the Stikine River watershed typically occurs in the lower reaches and at the mouth of the Tahltan River. Additional activity occurs less intensively in the Iskut River and other areas within the Stikine River drainage. Sport fishing activity commenced in late June however fishing effort and catch was relatively low. The Tahltan First Nation closed a popular camping site within the principal fishing grounds in order to reduce the harvest of Little Tahltan Chinook salmon which have experienced persistent decline since 2007.

Chinook Salmon

The pre-season forecast of Stikine River Chinook salmon, as developed by the Canada / U.S. Technical Committee for the Transboundary Rivers (TCTR), was for a below average terminal run size of 22,400 large Chinook salmon (i.e. fish with a mid-eye to fork length of >659mm (~26") or a fork length of >734mm (~29")). For comparison, the previous 10-year (2003-2012) average terminal run size was approximately 33,800 large Chinook salmon. A forecast run size of <24,500 precluded Canada or the U.S. from scheduling a directed fishery. To confirm in-season run strength, Canada engaged in a test fishery relying on the commercial fleet.

The total combined gill net catch of Chinook salmon in the First Nation and commercial fisheries included 1,953 large Chinook salmon and 1,323 jacks compared to 2003-2012 averages of 7,061 large Chinook salmon and 1,490 jacks, while the test fishery yielded a harvest of 1,412 large Chinook and 271 jack Chinook salmon. The 2013 sport fishery yielded a total catch of 50 large Chinook salmon.

In-season management was influenced significantly by run size projections derived from the Stikine Chinook Management Model (SCMM), a joint Canada-U.S. mark-recapture program, and other stock assessment tools (including the relationship between the commercial fishery catch per unit effort (CPUE) and run size from 2005-2012). Harvest rate assessments by week were also used concurrently with the above-mentioned in-season run size estimation techniques. In-season estimates based on the average of the mark-capture and model estimates were calculated post statistical week 22. In-season terminal run size projections ranged from 20,300 fish in statistical week 23 to 24,800 fish in statistical week 27. According to the in-season projections, the TAC for Canada in a directed Chinook salmon fishery varied from 3,880 to 3,900 large Chinook salmon. The TAC included the allowable catch based on current run size estimates and PST catch shares, the base level catch of 2,300 fish, plus 1400 fish allocated under a test fishing regime. The final post season run size was 21,700 large Chinook salmon.

A test fishery was required to determine weekly run sizes by both test fish CPUE and the ratio of spaghetti tags recovered in the fishery (mark-recapture project). Canada endeavoured to partition the Chinook harvest

(Canada's base level catch of 2,300 and 1,400 large Chinook provided by a test fishery) over the season through weekly fishery openings based on weekly guideline harvests. Based on an in-season run size estimate that exceeded the trigger level of 24,500 large Chinook salmon, a commercial fishery was initiated in statistical week 25. The first week of the targeted sockeye fishery, which commenced in statistical week 26, had a mesh size restriction of 140 mm (~5.5"); this action was aimed at minimizing the catch of large Chinook salmon while providing a fishing opportunity on the early component of the sockeye salmon return.

The preliminary post-season estimate of the terminal run was 21,700 large Chinook salmon, including an in river run size based on mark-recapture data of 20,100 large Chinook salmon and a total U.S. catch estimate of 1,600 large Chinook salmon. Accounting for the total Canadian catch of 3,400 large Chinook salmon (includes commercial, First Nation, sport and test catches), the total system-wide spawning escapement is estimated to be approximately 16,700 large Chinook salmon. This escapement estimate is 33% below the 2003-2012 average of 25,500 large Chinook salmon and 4% below the target S_{MSY} escapement goal of 17,400 large Chinook salmon (and within the escapement goal range of 14,000 to 28,000 large Chinook salmon). A run size of 21,700 large Chinook salmon translates into no allowable harvest in directed commercial fisheries. Both Canada and the U.S. were entitled to harvest a base level of catch of 2,300 and 3,400 large Chinook salmon respectively. In addition, Canada was entitled to harvest the test fish allocation.

The 2013 Chinook salmon escapement enumerated at the Little Tahltan weir was 878 large fish and 183 jack Chinook salmon while the escapement of large Chinook salmon in the Little Tahltan River was 79% below the average of 4,929 fish (73% below the (Canadian recognized) MSY escapement goal of 3,300 large Chinook salmon for this stock). The weir count was also well below the low end of the escapement goal range of 2,700 to 5,300 large fish, representing only 5% of the Stikine Rive wide escapement. This proportion of the escapement is well below the average Little Tahltan contribution of 14%, and is the seventh consecutive year that the lower end of the escapement was not reached. The 2013 return is a product of a very weak escapement in 2007 (represented by six year old fish) when only 562 large Chinook were enumerated. The failure from the 2008 escapement of 2,663 (five year old fish in 2013) cannot be fully explained at this time. The jack Chinook salmon count was 13% above the average count of 162 fish.

Escapement counts in Verrett River (a tributary to the Iskut River) were deemed to be unreliable in 2013 due to poor viewing conditions as reported by the carcass pitch crew stationed at the creek from August 4-10. However, an above average number of Chinook salmon were sampled from this site in 2013. A relatively strong return of Chinook salmon to Shakes Creek (near Telegraph Creek) was reported by residents living at the creek mouth.

Stikine River Chinook run timing to the lower Stikine commercial fishing and timing to the spawning grounds appeared to be near average however Chinook salmon entered the Little Tahltan spawning site approximately two weeks later than average.

In addition to the mark-recapture study, the Little Tahltan weir project, and aerial surveys, genetic samples were collected on a weekly basis from Chinook salmon caught in the U.S. District 108 fishery and from weekly catches taken in the Canadian commercial fishery. This data will be used to assess run timing of Stikine River stocks in District 108 and the lower Stikine River commercial fishery.

Sockeye Salmon

The pre-season forecast for Stikine River sockeye salmon, as provided by the TCTR, was for a terminal run size[3] of 135,800 fish including: 60,600 Tahltan Lake origin sockeye salmon (34,300 wild and 26,300 planted); 28,400 planted Tuya Lake sockeye; and 46,800 non-Tahltan wild sockeye salmon, which constituted a below average forecast (for comparison, the previous 10-year average (2003-2012) terminal run size was approximately 208,400 fish).

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[3] Terminal run excludes U.S. interceptions that occur outside Districts 108 and 106.

Preliminary combined catches from the Canadian commercial and First Nation (food, social, ceremonial (FSC)) gill net fisheries in the Stikine River totaled 32,700 sockeye in 2013, which was below the 2003-2012 average of 60,837 fish. The lower Stikine River commercial fishery harvested 24,314 sockeye, while the upper Stikine River commercial and First Nation fisheries harvested a total of 876 and 7,528 sockeye salmon, respectively. The preliminary estimate of the total contribution of sockeye salmon from the Canada/U.S. Stikine sockeye enhancement (i.e. the fry-planting program) to the combined Canadian First Nation and commercial catches was 13,785 fish (or 42% of the catch).

In addition to these catches, 1,302 sockeye salmon were taken in the stock assessment test fishery located near the U.S/ Canada border. For the sixth consecutive year, a fishery designed to target Tuya-bound sockeye operated in the mainstem Stikine River upstream of the mouth of the Tahltan River succeeded in harvesting 2,144 sockeye salmon.

A total of 15,828 sockeye salmon was counted through the Tahltan Lake weir in 2013, 45% below the 2003-2012 average of 34,501 fish. The 2013 count was below the escapement goal range of 18,000 to 30,000 fish. An estimated 7,898 fish (49%) originated from the fry-planting program, which was above the 45% contribution observed in smolts leaving the lake in 2010, the principal smolt year contributing to the 2013 return. A total of 3,292 sockeye salmon was collected for broodstock, resulting in a spawning escapement of 12,536 sockeye salmon in Tahltan Lake.

The total estimated run size of 38,753 Tahltan Lake sockeye was approximately 36% below the pre-season expectation of 60,600 fish.

The spawning escapements for the non-Tahltan and the Tuya stock groups are calculated using stock ID, test fishery and in-river commercial catch and effort data. The average of the test fishery and the commercial fishery catch-per-unit of effort (CPUE), which operated over the full duration of the run, were used as the principal tool in assessing the spawning ground escapements of non-Tahltan Lake and the Tuya sockeye stock groupings. Based on the run reconstructions generated from the test and commercial fishery CPUE, the preliminary escapement estimates for 2013 were 32,689 non-Tahltan and 8,767 Tuya sockeye salmon. The non-Tahltan spawning escapement estimate was within the escapement goal range of 20,000 to 40,000 and was 9% above the mid-point escapement goal of 30,000 sockeye salmon (2% above the recent 10 year average of 32,386 fish). Although the mainstem escapement based on the above ratio based estimate was above average, aerial surveys to assess the inter-annual returns to select spawning index sites indicated the return was below average. This discrepancy may be explained by the substandard viewing conditions (high turbid flows). The estimated escapement of 8,767 Tuya Lake sockeye salmon was close to the recent 10 year average of 9,244 fish. These fish do not contribute to the natural production of Stikine River sockeye salmon due to migration barriers that obstruct entry to their nursery lake and potential spawning areas.

Based on the in-river run reconstruction of the Tahltan Lake run expanded by run timing and stock ID data in the lower river and estimated harvests of Stikine River sockeye salmon in U.S. terminal gill net fisheries, the preliminary post-season estimate of the terminal sockeye run size is approximately 116,900 fish. This estimate includes 38,600 Tahltan Lake origin fish, 25,700 Tuya Lake origin fish, and 52,600 sockeye of the non-Tahltan stock aggregate. A Stikine River run size of this magnitude is below the 2003-2012 average terminal run size of 208,400 sockeye salmon and is approximately 14% below the preseason forecast of 135,800 fish.

Similar to 2008-2012, Canada relied on other in-season abundance estimates than those derived from the Stikine sockeye management model (SMM). As a result, in 2013, most of the in-season run projections used in management of the Canadian fisheries were based on the average of the SMM model and an in-river regression model. The run size projections ranged from 106,100 fish in statistical week 34 to 150,200 fish in statistical week 28. The final in-season run size estimate was 106,100 fish, based on the average of the two approaches, while the final estimate based solely on the SMM was 121,600 fish. The preliminary post-season estimate was 116,901 sockeye salmon with a Canadian allowable harvest of 22,792 fish. The actual harvest was 32,718 fish, 44% above the allowable catch.

Coho Salmon

For the fifth consecutive year, most of the fishing fleet remained in the fishery to harvest coho salmon resulting in a total catch of 6,757 coho salmon. A total catch of 4,835 coho salmon was taken during the targeted coho fishery from statistical week 35, slightly below Canada's 5,000 piece allocation, however above the 10 year average of 2,645 fish.

The annual coho salmon test fishery was not conducted in 2013. Incidental catches and CPUE taken in the sockeye salmon test and commercial fisheries were recorded as high. The CPUE collected from the targeted coho salmon fishery was also record high. Aerial surveys of six index spawning sites, however, yielded below average counts taken under fair viewing conditions. The reasons for the discrepancy between aerial surveys and the high coho salmon CPUE could not be fully explained.

Joint Sockeye Salmon Enhancement

Joint Canada/U.S. enhancement activities continued from 2012 through 2013 with the collection of sockeye salmon eggs from Tuya and Tahltan Lakes in British Columbia, transportation of eggs to the Snettisham Hatchery in Alaska where they were raised to fry, and subsequent transportation and release at out-plant sites in British Columbia.

Approximately 1.3 million fry were out-planted into Tahltan Lake and 755,000 fry into Tuya Lake through late May and early June 2013. The fry originated from the 2012 egg-take and were mass-marked at the Snettisham hatchery with thermally induced otolith marks. Green egg to released fry survival was approximately 39% for the eggs designated for Tuya Lake and approximately 37% for those designated for Tahltan Lake. A total of 1.06 million fry held at the Snettisham hatchery were destroyed due to Infectious Hematopoietic Necrosis virus (IHNv) infection and an additional 352,000 were lost due to an unintentional water supply interruption at the hatchery. Sockeye salmon enhancement programs have been subject to IHNv outbreaks before and while unfortunate the losses are within normal occurrence levels.

In the fall of 2013 approximately 4.4 million sockeye salmon eggs of a targeted 6.0 million were collected at Tahltan Lake and transported to Snettisham Hatchery in Alaska. Sockeye salmon returns to the Lake were lower than expected at 15,828 making brood stock collection difficult. As in 2012 additional efforts were employed to collect brood stock including temporarily holding approximately 65% of female brood stock to mature in floating net pens in the lake. Based on historical egg to survival rates an estimated 2.8 million sockeye salmon fry will be available in 2014 for release with a proposed split of 2.3 million to Tahltan Lake and 0.5 million to Tuya Lake.

For the sixth consecutive year, an experimental test fishery designed to target Tuya River sockeye at fishing sites located in the lower Grand Canyon of the Stikine River upstream from the mouth of the Tahltan River was conducted. The 2013 Tuya test fishery yielded a total catch of 2,144 sockeye salmon in late July; the Tuya component of this catch comprised a 15% harvest rate on terminally bound Tuya fish. There were also 28 Chinook salmon incidentally caught and released.

Through 2012, efforts were undertaken to explore the design and cost estimates of both an access road and a fish trap to improve terminal harvest opportunities of Tuya-bound sockeye salmon. At this time, the cost and design of a suitable access road to potential fishing sites is likely to be challenging.

Taku River

As with the Stikine River, the fishing plan developed by Canada for the Taku River was based on the arrangements in Annex IV, Chapter 1, Paragraph 3 of the PST in effect for 2009 through 2018. Accordingly, the plan addressed conservation requirements and contained the following harvest objectives: 1) o harvest 23% of the TAC of Taku River sockeye salmon (adjusted as necessary according to projections of the number of enhanced sockeye), plus the projected wild sockeye in-river escapement in excess of 1.6 times the spawning escapement goal; 2) to harvest enhanced Taku River sockeye salmon incidentally to wild sockeye salmon; and, 3) to harvest 3,000 to 10,000 coho salmon in a directed coho salmon fishery, depending on in-river run size projections, plus projected escapement in excess of the spawning escapement goal. There were no directed Chinook salmon fisheries planned in 2013 due the absence of an allowable catch allocation.

The 2013 commercial fishing season on the Taku River opened on June 16 (SW25) and closed on October 6 (SW41). However, all commercial fishing activity effectively ceased by early September (SW37) due to marketing challenges experienced on the Taku River at this time of year. Fishing area and gear restrictions were as per recent years and incorporated the maximum gill net length of 36.6 metres which was established in 2008 for drift gill nets and in 2009 for set gill nets.

The Taku River commercial fishing grounds in Canada consist of the mainstem of the river from the international border upstream approximately 18 km (11 mi.), to a geological feature known locally as Yellow Bluff. Almost all fishing activity takes place in the lower half of this area, downstream of the Tulsequah River.

The First Nation fishery is primarily located in the lower Taku River in the same area as the commercial fishery described above. However, small numbers of fish are also harvested on the lower Nakina River and at the outlet of Kuthai Lake. There were no time or gear restrictions imposed on the First Nation fishery in 2013.

Most of the Chinook salmon sport fishing effort in the Taku watershed typically occurs on the lower Nakina River. Additional sport fishing sites used less intensively exist on the Tatsatua River, the Sheslay River and other areas within the Taku River drainage. Effort and catches are poorly documented but are believed to be negligible for all species except Chinook salmon and steelhead (due to the remote nature of the watershed and difficult access).

Chinook Salmon

The bilateral pre-season forecast was for a terminal run of 18,700 large Chinook salmon, approximately 56% below the previous 10-year average of 42,466 fish. The forecast generated by the Taku River Chinook salmon model was 26,100 fish. However, due to persistent overestimation in recent years coupled with a pattern of decline in Chinook salmon stocks in the North Pacific, the forecast was reduced by 29%. A run size of 18,700 fish was below both the SMSY escapement point goal of 25,500 fish, and the lower end of the escapement goal range (19,000 fish). As a result, there was no allowable (AC) for either the U.S. or Canada, and a minor adjustment to the base level catches (BLCs) of 1,500 fish for Canada and 3,500 fish for the U.S. was required. To respect the poor forecast, the test fishery (1,400 fish) was not conducted.

The catches of Chinook salmon in Canadian Chinook salmon base level fisheries were: 579 large Chinook salmon captured incidentally in the directed commercial sockeye salmon gill net fishery; 54 large Chinook salmon in the First Nation fishery; and an estimated 105 large Chinook salmon in the recreational fishery. The total harvest of 738 large Chinook salmon was within the base level allowance of 1,500 fish.

Due to challenges with the mark-recapture project stemming in part from the low run size, a spawning escapement estimate has not yet been finalized for 2013. However, both the spawning escapement and the terminal run are believed to be below the SMSY of 25,500 large Chinook. The 2003-2012 average spawning escapement is 33,353 large Chinook (which was associated with a higher target until 2009). During aerial surveys of five index areas, a total of 3,274 large Chinook salmon were observed; this was 34% below the 2003-2012 average.

There were no in-season or post-season indications that an AC existed. Base level catches were 748 fish (Canada) and 1,159 fish (U.S.). The Canadian catch of large Chinook was 81% below the 2003-2012 average of approximately 4,000 fish (excluding test fisheries). The 2013 harvest of small Chinook was 669 fish (653 commercial and 16 First Nation), 12% above the 2003-2012 average of 595 fish.

Sockeye Salmon

The Canadian pre-season run outlook for wild sockeye salmon was 254,974 fish, approximately 29% above the previous 10-year average total run size of 197,000 fish. In addition, approximately 21,364 adult sockeye salmon (21,314 of Tatsamenie Lake origin and 50 of Trapper Lake origin) were expected to return from fry outplants associated with the Canada/U.S. joint Taku sockeye salmon enhancement program. The forecast return of enhanced Tatsamenie Lake origin sockeye salmon was 3.7 times the average return of 5,800 fish.

The Canadian sockeye salmon catch was 25,113 fish, of which 25,014 were taken in the commercial fishery and 99 in the First Nation fishery. This harvest was 14% above the 2003-2012 average total of 22,070 fish, with the contribution of sockeye salmon from the bilateral enhancement program estimated at 3,950 fish (16% of the total Canadian catch).

To reduce bycatch of Chinook salmon he maximum permissible mesh size in the directed sockeye salmon fishery which commenced in mid-June was 140 mm (5.5"). Projections of the total wild sockeye salmon run size, TAC, and total escapement were made frequently throughout the fishing season. As in past years, projections were based on the bilateral mark-recapture program, the estimated catch of Taku River sockeye in U.S. fisheries, the catch in the Canadian fishery, and historical run timing information. Projections in 2013 ranged from 163,000 in SW28 (July 7-13) to 217,000 in SW 30 (July 21-27). The preliminary post-season estimate of run size is 202,667 fish, comprising 181,730 wild sockeye and 20,937 enhanced sockeye with a "wild" component 21% below the preseason forecast, and an enhanced component within 3% of the forecast). Subtracting the escapement target of 75,000 from the run of 181,730 fish results in a TAC of 106,730 wild fish. The Canadian allowable catch, based on a 23% harvest share (which in turn is associated with an enhanced return of 15,000 – 25,000 fish), was 24,548 fish; the actual catch was 21,163 wild fish, representing 20% of the TAC of wild fish. Likewise, the U.S. allowable catch of wild fish, based on a 77% harvest share, was 82,182 fish; the actual catch was 85,344 fish, representing 80% of the TAC of wild fish.

The estimated spawning escapement of sockeye salmon in the Canadian section of the Taku River was 75,244 fish which matched the mid-point of the target range, 71,000 to 80,000 fish. The escapement is 28% below the 2003-2012 average of 106,157 fish. Based on weir counts, escapements to the Kuthai, Little Trapper, Tatsamenic and King Salmon lakes were 1,195, 4,840, 10,246, and 485 sockeye salmon, respectively. The Kuthai Lake escapement 23% was below the primary brood year count, and 59% below the 2003-2012 average. The Little Trapper escapement was 26% above the primary brood year count but 58% below average. The Tatsamenic count was 14% above the primary brood year escapement, and 26% above average while the escapement to King Salmon Lake was 45% below the primary brood year escapement and 82% below average.

Coho Salmon

The catch of 10,374 coho salmon (10,263 commercial and 111 First Nation) was 8% above the 2003-2012 average of 9,953 fish. The catch during the directed coho salmon fishery, i.e. after SW33, was 7,021 fish. A test fishery was not initiated in 2013. Based on bilateral mark-recapture data, the preliminary estimate of the run into the Canadian section of the drainage is 78,492 fish. In accordance with PST harvest arrangements for Taku River coho salmon, at a run size of this magnitude, Canadian harvesters were entitled to harvest up to 10,000 coho salmon in a directed fishery starting in SW34, plus projected surplus escapement. The preliminary post-season spawning escapement estimate is 68,118 fish, 39% below the previous 10-year average of 111,238 fish. The 2013 return was well above the top end of the interim escapement goal range of 27,500 to 35,000 fish; however, this escapement goal is under review and is likely to increase pending conclusion of technical and scientific review. The preliminary post-season estimate of total run is 142,172, within 15% of the pre-season forecast of 162,787 fish.

Joint Sockeye Enhancement

Joint Canada/U.S. enhancement activities continued from 2012 through 2013 with sockeye salmon fry hatched at Snettisham Hatchery in Alaska transported to Tatsamenie Lake and King Salmon Lake British Columbia (where these fish were collected as eggs in 2012).

Approximately 90% of the 2 million sockeye salmon eggs collected in 2012 from Tatsamenie Lake survived to the fry stage at the Snettisham Hatchery in Alaska. There were no Infectious Hematopoietic Necrosis virus (IHNv) losses in the Tatsamenie Lake hatchery raised sockeye salmon fry in 2012/13. By June 10, 2013 approximately 1.7 million emergent sockeye salmon fry were out-planted into Tatsamenie Lake. In addition, as part of an onshore extended rearing project, approximately 216,000 fed fry were released into four onshore rearing tanks. These fish were released in two groups into floating net pens in Tatsamenie Lake. Fry groups were held for 15 and 10 days and released July 28 and August 9 at weights of 3.6 and 4.6 grams respectively. Water temperatures were warm in Tatsamenie Lake and both hatchery and wild sockeye salmon were observed to have grown well. As was observed in 2011 and 2012, a portion of the extended reared fry appeared to out-migrate almost immediately, rather than remaining in the lake to rear over the winter. Smolt assessment results estimate that 571,000 smolts left Tatsamenie through spring and summer 2013 with a hatchery smolt contribution of 46%.

Approximately 79% of the 250,000 sockeye salmon eggs collected from King Salmon Lake survived to the fry stage at Snettisham Hatchery in Alaska with no IHNv losses. On June 2, 2013 approximately 197,000 fry were transported and released to King Salmon Lake.

For 2013, the agreed bilateral Taku River enhancement production plan was collection of up to 2.0 million sockeye salmon eggs from Tatsamenie Lake, up to 250,000 eggs from King Salmon Lake and pending project feasibility and permitting up to 250,000 eggs from Trapper River for transport to Snettisham Hatchery in Alaska for incubation and thermal marking.

Sockeye salmon eggs were not collected from King Salmon River in 2013 due to low escapement (485 sockeye counted at the King Salmon weir). Sockeye salmon eggs were not collected from Trapper Lake in 2013 either. Information continues to be compiled as part of the feasibility study associated with removal of a migration barrier near the outlet of Trapper Lake (detailed in the 2010 Taku Enhancement Plan) to provide for potential fish passage to Trapper Lake.

A total of approximately 1.7 million sockeye salmon eggs were collected from Tatsamenie Lake between September 16 and October 10, 2013 and transported to Snettisham Hatchery for incubation and return in 2014.

Alsek River

Although catch sharing provisions for Alsek River salmon stocks between Canada and the U.S. have not yet been specified, Annex IV of the Pacific Salmon Treaty calls for the development and implementation of cooperative abundance-based management plans and programs for Alsek River Chinook and sockeye salmon. Interim escapement goal ranges for Alsek River sockeye and coho salmon were initially set by the TCTR at 33,000 to 58,000 sockeye, and 5,400 to 25,000 coho salmon. The principal escapement-monitoring tool for Chinook, sockeye, and coho salmon stocks on the Alsek River is the Klukshu weir, in operation since 1976 by DFO in cooperation with the Champagne-Aishihik First Nation (CAFN).

To enable for better definition of management objectives for Chinook and sockeye salmon (in terms of Klukshu stocks), revised goals, expressed in terms of Klukshu escapements were established in 1999. This approach was used again in 2013.

Previously, a joint escapement goal for Klukshu Chinook salmon was developed by both DFO and Alaska Department of Fish and Game, which recommended an escapement goal range of 1,100 to 2,300 Chinook spawners in the Klukshu drainage (McPherson, Etherton and Clark 1998). A review of the recent escapement goal analysis completed by Bernard and Jones in 2010 was conducted by the Canadian Science Advisory Pacific (CSAP). The 2010 analysis suggested a revised escapement goal of 800-1,200 fish. The revised goal was adopted by the TCTR early in 2013 and implemented for the 2013 season.

Prior to 2013, the biologically-based escapement goal for Klukshu sockeye salmon was 7,500 to 15,000 fish (Clark and Etherton, 2000). Similar to the Chinook salmon goal review, an updated escapement goal analysis for sockeye salmon was completed in 2010 by Eggers and Bernard, and was reviewed by CSAP. The 2010 analysis suggested a revised escapement goal of 7,500-11,000 which was adopted by the TTC early in 2013 and implemented for the 2013 season.

Total drainage abundance programs are being investigated as part of the development of abundance-based management regimes and to accurately assess whether the escapement goals for Alsek River Chinook and sockeye salmon stocks are appropriate and achievable. At this time, there are no programs in place to estimate the drainage-wide coho salmon escapement. A large and variable proportion of the escapement of each species is enumerated at the weir on the Klukshu River. Current escapement monitoring programs include the Klukshu weir, Village Creek electronic counter and aerial surveys, which allow for annual comparisons of escapement indices. The most reliable long-term comparative escapement index for Alsek River drainage salmon stocks is the Klukshu River weir count.

The harvest estimate for the 2013 First Nation fishery comprised of the fish taken from the Klukshu River weir (elders only) and an estimate of catches above/below the weir (based on the past relationship with the weir count and harvest). An estimated 67 Chinook, 508 sockeye and no coho salmon were harvested in the food fishery. The recent average catches are 71 Chinook, 1,405 sockeye, and 6 coho salmon. Preliminary catch estimates for the Tatshenshini recreational fishery were an estimated 5 Chinook salmon retained (197 released), and zero sockeye salmon retained (15 released). There were 23 coho salmon retained (72 released) although this value is considered incomplete as some effort and harvest may have occurred after monitoring ceased. 2013 catches were 8%, 0%, and 57% of average for Chinook, sockeye and coho salmon, respectively. As the Chinook salmon return to the Klukshu River achieved the escapement objective, retention was permitted on July 26th (for the Yukon portion of the Tatshenshini River). Non-retention of sockeye salmon was maintained for the season due to the poor return. Coho salmon retention limits were liberalized on October 11th due to an above average return.

The preliminary weir count and escapement estimates of Klukshu River sockeye salmon in 2013 were 3,902 and 3,800 fish, respectively. The count of 312 early run fish (counted through August 15) was well below the average of 2,848 as was the count of 3,590 late run fish with an average of 11,351. The total escapement of 3,800 fish was well below the lower end of the recommended escapement goal range of 7,500 to 11,000 fish. The 2013 sockeye salmon escapement to Village Creek was 129, well below the average of 2,500 fish.

The most reliable comparative Chinook salmon escapement index for the Alsek River drainage is considered to be the Klukshu River weir count. The preliminary Chinook salmon weir and escapement estimate in 2013 was 1,261 and 1,227 fish, respectively. With a minimal harvest above the Klukshu River weir is assumed, the 2013 escapement estimate was slightly above the upper end the escapement goal range of 800 to 1,200 Klukshu Chinook salmon.

The Klukshu River coho salmon weir count was 7,322 well above the 10 year average of 1,630 fish. The 2013 count, as in past years, is not considered a complete indicator of run strength as the weir is prior to the end of the coho salmon run to the Klukshu River.

Northern British Columbia Pink Salmon

Areas 3-1 to 3-4 Pink Net Catch

For the year 2013, Canada was to manage the Area 3-1 to 3-4 net fishery to achieve an annual catch share of 2.49 % of the annual allowable harvest (AAH) of Alaskan Districts 101, 102 and 103 pink salmon. With a Total Return of approximately 80.81 million pinks, the Alaskan Districts 101, 102 and 103 AAH was 70.06 million pinks. The resulting Area 3-1 to 3-4 Canadian commercial net total allowable catch of this AAH was approximately 1.74 million pinks of Alaskan Districts 101, 102 and 103 origin.

In the Canadian northern boundary area, pink salmon returns were anticipated to be very poor for both Area 3 and Area 4, based on brood year return strength. Actual returns to Area 3 and 4 streams were well above average. The 2013 preliminary Canadian pink salmon catch in Sub-areas 3-1 to 3-4 was 1.24 million and the Alaska stock component of this catch is estimated to be 1.15 million, or 1.64 % of the AAH, well below the agreement of 2.49 % in Annex IV of the Pacific Salmon Treaty.

Area 1 Pink Troll Catch

For the year 2013, Canada was to manage the Area 1 troll fishery to achieve an annual catch share of 2.57 % of the annual allowable harvest (AAH) of Alaskan Districts 101, 102 and 103 pink salmon. The resulting Area 1 Canadian commercial troll total allowable catch of this AAH was approximately 1.44 million pinks of Alaskan Districts 101, 102 and 103 origin.

The Canadian commercial troll fishery targeting pink salmon was open in the northern portion of Area 1 (Dixon Entrance AB Line) from July 1st to September 30th. Pink retention was also permitted during the Chinook directed fishery in parts of Area 1 which opened from June 21st to July 7th. Area 1 pink salmon directed effort was very minimal and the fishery harvested a total of 84,216 pink salmon, with an estimated 80,590 of Alaskan origin. This equates to 0.12 % of the Alaskan District 101, 102 and 103 pink AAH, well below the annex IV agreement of 2.57%.

Chinook Salmon AABM Fisheries

The pre-season abundance index for North Coast B.C. troll and Haida Gwaii sport fisheries in 2013 was 1.10, which allowed a total catch of 143,400 Chinook salmon in these fisheries. Preliminary estimates indicate a total catch of 115,914 Chinook salmon; 69,264 caught in commercial troll fisheries and 46,650 caught in sport fisheries.

The North Coast B.C. troll fishery was opened for Chinook fishing from June 21 to July 7. The entire 2013 Northern B.C. troll fishery was conducted under a system of individual transferable quotas. The size limit was 67 cm. Barbless hooks and revival boxes were mandatory in the troll fishery. No troll test fisheries were conducted in the North Coast of B.C. in 2013.

Sport fishing was open with a daily limit of 2 Chinook and a possession limit of 4 Chinook. An estimated 46,650 Chinook were caught in the Haida Gwaii (Queen Charlotte Islands) sport fishery. A minimum size limit of 45 cm was in effect and barbless hooks were mandatory in the sport fishery.

Chinook ISBM Fisheries

Fisheries included in this category are commercial net fisheries throughout north and central B.C., marine sport fisheries along the mainland coast and freshwater sport, and First Nations fisheries in both marine and freshwater areas. Under the PST, obligations in these fisheries are for a general harvest rate reduction (estimated in aggregate across fisheries) for ocean mixed-stock fisheries and for stock-specific objectives (i.e., achieving the escapement goal) in terminal areas.

North Coast commercial gill net catches totalled 2,126 Chinook from Areas 3 to 6 (from hail catch data). Chinook catch in Areas 3 and 4 were 1,129 and 997 Chinook respectively. No Chinook were reported caught in Area 5 or in Area 6. These preliminary estimates of gill net catches include Chinook less than 5 pounds (graded as jacks and small red fleshed Chinook) not normally included for PSC accounting. Small Chinook typically make up less than 5% of commercial gill net catches. Hail catch data tend to underestimate catch reported in fish slips by 25 to 30%. In addition, a total of 547 large Chinook and 95 jacks were caught in the Tyee Test fishery on the Skeena River.

Central Coast commercial gill net catches totalled 5,301 Chinook with 5,299 from Area 8 and 2 from Area 7 (from hail catch data).

Johnstone Strait commercial fisheries including Area B seine and Area D gill net was managed by South Coast and corresponding catches are reported in the South Coast section of this report.

Tidal sport catch from lodges operating in the Rivers Inlet, Hakai Pass and Bella Bella areas were estimated using log books. Approximately 4,457 Chinook were retained at lodges in these areas in 2013.

Preliminary estimates for tidal sport catches near the mainland coast of Northern B.C. were 10,259 from a creel survey conducted in Areas 3 and 4 in 2013. The 2013 catches in the mainland sport fishery in Areas 5 and 6 were unknown. The preliminary estimate from a freshwater creel survey conducted in the Skeena River below Terrace in 2013 was 1,552 large Chinook and 838 jacks. It was unusual to see this many jacks in the recreational catch on the Skeena River. Tidal and freshwater catches in Northern B.C. were better in 2013 after a low year in 2012.

Catches by First Nations in the North Coast exceeded 8,511 Chinook in 2013. Nisga'a and Gitanyow catches from the Nass River were 4,398 Chinook. Haida catches on Haida Gwaii were estimated to exceed 1,800 Chinook. Only a portion of catches from First Nations fisheries in the Skeena have been reported but current estimates exceed 2,359 Chinook.

Catches by First Nations in the tidal portion of the Central Coast were reported as 978 Chinook. The non-tidal catches included 2,871 Atnarko River Chinook (Area 8) and 25 Chinook from Rivers Inlet (Area 9).

Overview of Northern B.C. Chinook Stock Status

Since assessments of the ISBM fisheries are relative to the escapements achieved in the Chinook indicator stocks, a brief overview of the 2013 returns is provided. Northern B.C. terminal runs were low again in 2013 in the Nass and Skeena Rivers. Preliminary estimates of Nass River escapements were 8,011. Skeena River Chinook escapements declined to approximately 26,699. Atnarko River Chinook escapements were estimated at 27,292, much better than returns in 2012.

Fraser River Sockeye

Objectives and Overview

The 2013 Fraser sockeye forecast had an 80% prediction interval of 1.55M – 15.61M. From this distribution of run size forecasts, the Fraser River Panel (FRP) adopted the 50% (p50) probability level of abundance forecast for pre-season planning purposes of 4.77 million Fraser sockeye. A majority of the total return (~78%) was expected to be Summer run sockeye. Pre-season planning focused the Food, Social and Ceremonial (FSC) fisheries and limited commercial and recreational fisheries on Summer run sockeye, with constraints on harvest opportunities to minimize impacts on less abundant stock groups at the p50 pre-season run size forecasts.

Pre-season planning incorporated provisions to meet escapement objectives and meet conservation objectives for stocks of concern while considering international and domestic objectives. Significant effort was placed on developing a pre-season plan for anticipated fisheries. The pre-season plan included the following assumptions and guiding principles in no particular order:

- The Commission's guidance provided in 2011 (direction to the FRP with respect to implementing Paragraphs 3 and 8 of Chapter 4, Annex IV of the Pacific Salmon Treaty) remained in effect for 2013;

- The U.S. share of the annual Fraser River sockeye salmon total allowable catch (TAC), harvested in the waters of Washington State was set at 16.5% of the aggregate. To the extent practicable, the Fraser River Panel shall manage the United States fishery to implement a fishing plan that concentrates harvest on the most abundant management group (or groups). It is understood that the U.S. harvest may exceed 16.5% of the TAC for one or more of the less abundant management groups despite concentrating the harvest in this manner;

- For computing TAC by stock management groupings, the Aboriginal Fishery Exemption (AFE) of 400,000 Fraser River sockeye, shall be allocated to management groups as follows: The Early Stuart sockeye exemption shall be up to 20% of the Fraser River AFE, and the remaining balance of the latter exemption shall be based on the average proportional distribution of First Nations Food, Social and Ceremonial catch for the most recent three cycles and modified annually as required to address concerns for Fraser River sockeye stocks and other species and as otherwise agreed by the Fraser River Panel;

- Although the capability to assess in-season run size and marine migration timing would be good for Late run sockeye, an in-season run size estimate for Cultus Lake sockeye would not be possible due to low abundance relative to co-migrating sockeye stocks. As a result, the Cultus exploitation rate is assumed to be the same as the exploitation rate from the similarly timed Late run stocks (excluding Birkenhead) caught seaward of the confluence of the Fraser and the Vedder rivers;

- Cultus Lake sockeye will be managed within the constraints of the exploitation rate identified for the Late run aggregate;

- The four stock aggregates identified under the Pacific Salmon Treaty Annex generally contain stocks with similar timing in the marine area. Recent trends in timing of some stocks, including Raft River and North Thompson (in the Early Summer run prior to 2012), and Harrison River (in the Late run prior to 2012) sockeye now differs substantially from the other stocks in their recent run timing groups. In 2013 Fisheries and Oceans Canada continued to manage these stocks as part of the Summer run aggregate to better align these stocks with other stocks of similar run timing. Escapement plans, management adjustments and harvest rules have been adjusted to account for this change;

- Canada's escapement plan specified escapement requirements that varied with run size for each of the run timing aggregates;

- At low abundances, low abundance exploitation rates (LAERs) are implemented to protect 90% of the run timing aggregate (10% LAER) while allowing for fisheries on more abundant co-migrating run timing groups and/or species. The exception is the Late run aggregate where a 20% LAER has been implemented consistent with recent years' practice. If the return of Late run sockeye was at or above the p75 forecast, consideration would be given to increasing the Late run LAER up to 30%;
- For Early Stuart sockeye, window closures and other fishing restrictions were planned for commercial, recreational and First Nations fisheries to protect a significant proportion (90%) of the Early Stuart return. These measures included a rolling three week window closure based on run timing of the Early Stuart sockeye migration through various fishery areas; and
- Conservation concerns for other sockeye stocks and species continued to impact the planning of sockeye fisheries in 2013. The stocks and species of concern in 2013 were: Early Stuart sockeye, Cultus Lake sockeye, Nimpkish River sockeye, Sakinaw Lake sockeye, Interior Fraser River coho, Fraser Spring 42 Chinook, Fraser Spring and Summer 52 Chinook, and Interior Fraser River steelhead.

Preseason Assessment

In addition to Canada's escapement plan, estimates of run size, diversion rate, run timing and assumptions about in-season environmental conditions are key inputs required to seed the pre-season Harvest Planning Model prior to observing in-season information. The main objective of the model is to identify potential fishing opportunities while attempting to meet conservation, international and domestic harvest objectives.

The 2013 sockeye run size forecasts were calculated using methods similar to 2012, which assesses the performance of both long-term stock-recruit models by assuming average productivity and non-parametric models based on recent recruit per spawner data over the entire time series via jack knife analysis. The final forecast model for each stock was selected based on its ability to predict the stock's true returns over the full stock-recruitment time series.

As outlined in the Pacific Salmon Treaty, the mid-point of the forecast provided by Canada was used for management purposes, until in-season updates of run size are available. For pre-season planning purposes, the FRP used the 50% probability level for all run timing groups and stocks. The 2013 50% probability forecasts for all four management aggregates were as follows: Early Stuart 211,000; Early Summer run 253,000; Summer run 3,718,000; and Late run 583,000, for a total of 4,765,000 Fraser sockeye. The total four year old proportion of the 2013 forecast (~90% of the total four plus five year old forecast at the 50% probability level) is above average (82%) due mostly to the low brood year returns for many stocks which are normally comprised of 5 year old sockeye.

Diversion Rate

The pre-season forecast of the percentage of Fraser sockeye migrating through Johnstone Strait was based on the mean of two diversion forecasts - the Northern Diversion Rate values for the aggregate stocks (time series provided by the Pacific Salmon Commission) regressed against time series for three physical variables, and an estimate based on the relationship between the mean daily sea surface temperature measured at the Kains Island (Quatsino) lighthouse in May and June and the estimated post-season Northern Diversion Rate for 1977-2012. The final pre-season forecast of the proportion of Fraser sockeye diverting through Johnstone Strait was 35%.

For the purposes of pre-season planning, it is assumed that Northern Diversion increases over the course of the season. In addition, Early Stuart and Harrison sockeye are assumed to migrate predominately through the Juan de Fuca approach, regardless of migration timing.

Timing Forecasts

The pre-season forecasts are based on the 50% marine arrival times for the two sockeye salmon stocks (Early Stuart and Chilko River time series provided by the Pacific Salmon Commission) regressed against time series for five physical variables. The forecast of the 50% date (peak timing) for Early Stuart and Chilko Lake sockeye arriving to Area 20 was July 5 and August 4, respectively.

The FRP considered expected run timings for the other stock groups, and reconsidered Chilko sockeye timing, based on their historic relationship to Early Stuart sockeye timing. The following are the pre-season estimates of timing in Area 20 adopted by the FRP.

Table 27.- Timing Estimates Used for Pre-Season Planning in Area 20

Stock	**2013 Area 20 Timing**
Early Stuart	July 5
Early Summers	July 23
Summer run	August 3
Late run	August 12

The following figure graphically illustrates the relative run size forecasts and run timing overlaps expected in 2013.

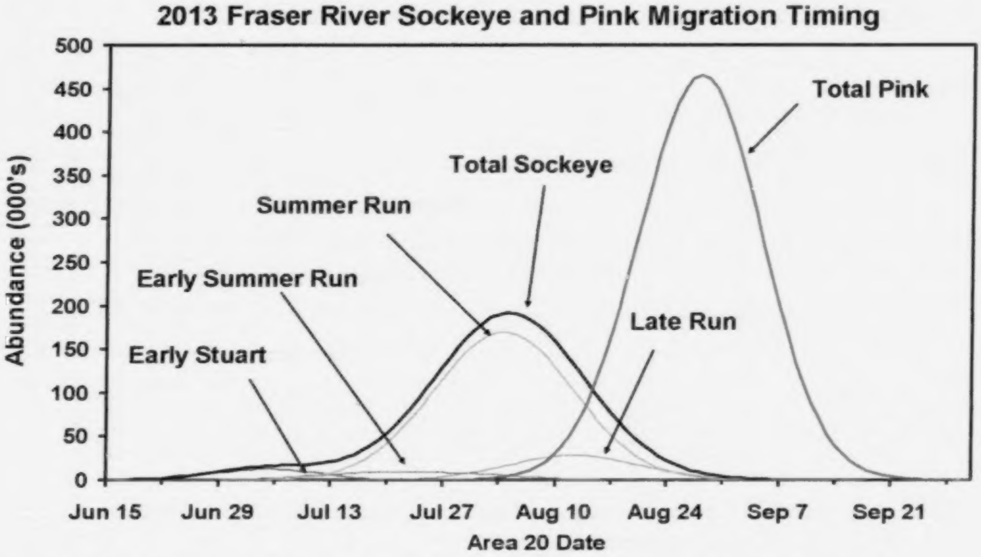


Figure 39.-Relative Run Size Forecasts and Run Timing Overlaps Expected in 2013

Environmental Conditions and Management Adjustments

Management Adjustments (MAs) reflect a quantity of fish that are added to the spawning escapement targets for the purpose of increasing the likelihood of achieving the spawning escapement targets. The general concept is that more fish are needed to be counted going past Mission, than needed for spawning ground escapement and the anticipated catch above Mission, to account for the historic discrepancy between the number of fish estimated at Mission in-season (minus the actual catch above Mission) and the number of fish counted on the spawning grounds. This discrepancy may be due to a number of factors, including (but not limited to): critically high temperatures and/or discharge in the Fraser River, bias in estimates at Mission hydroacoustics and/or spawning ground escapement estimates, biased catch estimates, unreported catch, delayed mortality associated with escapes or releases from fishing gear, natural mortality, and/or predation. While all of these factors are included in the difference between estimates, generally the inputs used to estimate MAs are temperature and discharge for Early Stuart, Early Summer and Summer run sockeye and the 50% migration timing at Mission for Late run sockeye. In some cases, a MA for an aggregate may include alternatives such as observed medians when the temperature and discharge models are thought not to apply for some stocks.

For the Early Stuart, Early Summer run and Summer run sockeye, MA estimates can be updated in-season, as river conditions, peak timing and run size information is acquired. In some years Late run sockeye MA estimates can be updated in-season based on peak timing estimates.

In 2013 the pre-season Early Summer run MA was the weighted average using a zero pMA for Pitt River, 0.57 for Chilliwack River, and a modelled pMA for the remaining stocks based on in river migration conditions. The Summer run MA was the weighted average using a pMA of 0.37 for Harrison sockeye and a modelled pMA for the remaining stocks based on migration conditions. The Late run MA was the weighted average of the observed median for Birkenhead sockeye (0.34) and a timing based MA for all other Lates.

The pre-season MA expressed as a percentage of the spawning escapement goal (pMA) and the number of sockeye this represents for 2013 p50 pre-season run sizes are outlined in the table below.

Table 28.- MA Estimates used for Pre-Season Planning in 2013

	Pre-season Run Size	**pMA**	**MA**
Early Stuarts	211,000	0.57	61,600
Early Summers	253,000	0.46	64,900
Summers	3,718,000	0.10	148,700
Late run	583,000	0.67	209,700

2013 Escapement Plan

The Fraser River Sockeye Spawning Initiative is a multi-year collaborative planning process to develop a long-term escapement strategy. The annual escapement strategy seeks a balance between long-term objectives and short-term practical considerations, and combines technical analyses with qualitative judgment. A plan is developed every year and is vetted through consultative processes prior to the fishing season. The annual allowable exploitation rate for each run timing aggregate is adjusted based on run size and environmental conditions. The table below represents the pre-season escapement plan for 2013 as reflected in the final Salmon Integrated Fisheries Management Plan (IFMP). Note that the Management Adjustments in the Table below have been modified subsequent to the release of the IFMP by the Panel based on adjustments to pre-season timing expectations.

Table 29.- 2013 Fraser River Sockeye Escapement Plan – Pre-Season Run Estimates

Management Unit		Pre-season Forecast Return				
		p10	p25	**p50**	p75	p90
Early Stuart	forecast	92,000	137,000	**211,000**	331,000	507,000
	TAM Rule (%)	0%	21%	**49%**	60%	60%
	Escapement Target	92,000	108,000	**108,000**	132,400	202,800
	MA	61,600	72,400	**72,400**	88,700	135,900
	Esc. Target + MA	153,600	180,400	**180,400**	221,100	338,700
	LAER	10%	10%	**10%**	10%	10%
	ER at Return	0%	0%	**15%**	33%	33%
	Allowable ER	10%	10%	**15%**	33%	33%
	available for harvest	9,200	13,700	**30,600**	109,900	168,300
	2013 Performance					
	Projected S (after MA)	50,000	74,000	**108,000**	132,000	203,000
	BY Spawners	45,300	45,300	**45,300**	45,300	45,300
	Proj. S as % BY S	110%	163%	**238%**	291%	448%
	cycle avg S	210,300	210,300	**210,300**	210,300	210,300
	Proj. S as % cycle S	24%	35%	**51%**	63%	97%
Management Unit		**Pre-season Forecast Return**				
		p10	p25	**p50**	p75	p90
Early Summer (w/o RNT)	*lower ref. pt. (w misc)*	141,000	141,000	141,000	141,000	141,000
	upper ref. pt. (w misc)	351,000	351,000	351,000	351,000	351,000
	forecast (incl. misc)	73,000	130,000	253,000	468,000	844,000
	TAM Rule (%)	0%	0%	**44%**	60%	60%
	Escapement Target	73,000	130,000	**141,000**	187,200	337,600
	MA	37,200	66,300	**71,900**	95,500	172,200
	Esc. Target + MA	110,200	196,300	**212,900**	282,700	509,800
	LAER	10%	10%	**10%**	10%	10%
	ER at Return	0%	0%	**16%**	40%	40%
	Allowable ER	10%	10%	**16%**	40%	40%
	available for harvest	7,300	13,000	**40,100**	185,300	334,200
	2013 Performance					
	Projected S (after MA)	44,000	77,000	**141,000**	187,000	338,000
	BY Spawners	80,200	80,200	**80,200**	80,200	80,200
	Proj. S as % BY S	55%	96%	**176%**	233%	421%
	cycle avg S	91,000	91,000	**91,000**	91,000	91,000
	Proj. S as % cycle S	48%	85%	**155%**	205%	371%
Management Unit		**Pre-season Forecast Return**				
		p10	p25	**p50**	p75	p90
Summer (w. RNT & Har)	*lower ref. pt. (w misc)*	1,254,000	1,254,000	**1,254,000**	1,254,000	1,254,000
	upper ref. pt. (w misc)	3,136,000	3,136,000	**3,136,000**	3,136,000	3,136,000
	forecast	1,222,000	2,095,000	**3,718,000**	6,663,000	12,131,000
	TAM Rule (%)	0%	40%	**60%**	60%	60%
	Escapement Target	1,222,000	1,254,000	**1,487,200**	2,665,200	4,852,400
	MA	122,200	125,400	**148,700**	266,500	485,200
	Esc. Target + MA	1,344,200	1,379,400	**1,635,900**	2,931,700	5,337,600
	LAER	10%	10%	**10%**	10%	10%
	ER at Return	0%	34%	**56%**	56%	56%
	Allowable ER	10%	34%	**56%**	56%	56%
	available for harvest	122,200	715,600	**2,082,100**	3,731,300	6,793,400
	2013 Performance					
	Projected S (after MA)	1,000,000	1,254,000	**1,487,000**	2,665,000	4,852,000
	BY Spawners	796,200	796,200	796,200	796,200	796,200
	Proj. S as % BY S	126%	157%	**187%**	335%	609%
	cycle avg S	1,825,400	1,825,400	**1,825,400**	1,825,400	1,825,400
	Proj. S as % cycle S	55%	69%	**81%**	146%	266%
Management Unit		**Pre-season Forecast Return**				
		p10	p25	**p50**	p75	p90
Late (w/o Har)	*lower ref. pt. (w misc)*	313,000	313,000	**313,000**	313,000	313,000
	upper ref. pt. (w misc)	782,000	782,000	**782,000**	782,000	782,000
	forecast	167,000	293,000	**583,000**	1,133,000	2,126,000
	TAM Rule (%)	0%	0%	**46%**	60%	60%
	Escapement Target	167,000	293,000	**313,000**	453,200	850,400
	MA	111,900	196,300	**209,700**	303,600	569,800
	Esc. Target + MA	278,900	489,300	**522,700**	756,800	1,420,200
	LAER	20%	20%	**20%**	30%	30%
	ER at Return	0%	0%	**10%**	33%	33%
	Allowable ER	20%	20%	**20%**	33%	33%
	available for harvest	33,400	58,600	**116,600**	376,200	705,800
	2013 Performance					
	Projected S (after MA)	80,000	140,000	**279,000**	453,000	850,000
	BY Spawners	134,000	134,000	134,000	134,000	134,000
	Proj. S as % BY S	60%	104%	**208%**	338%	634%
	cycle avg S	104,200	104,200	**104,200**	104,200	104,200
	Proj. S as % cycle S	77%	134%	**268%**	435%	816%
Available for Harvest (TF, US, CDN)		172,100	800,900	**2,265,400**	4,402,700	8,001,700
Total projected spawners		1,174,000	1,545,000	**2,015,000**	3,437,000	6,243,000

In-Season Assessment

In-season assessments in 2013 were challenging at times due to the following:

- High Fraser River discharge delayed the start of Mission hydro-acoustic estimates. This increased the uncertainty in estimates of sockeye passage at Mission for Early Stuart sockeye;
- Test fishery catch per unit effort was higher in the marine area test fisheries than the in-river test fisheries for much of the sockeye migration. This made it difficult to confirm appropriate expansion lines used to project sockeye returning to the Mission hydro-acoustic site;
- Record Fraser River water temperatures observed during extended periods of sockeye migration likely increased uncertainty in MA estimates for some groups;
- The protracted return profile of the Summer run sockeye increased the uncertainty in the timing and abundance for this group; and
- Although Late run delay was suspected, it was difficult to determine in-season given the low abundance of Late run sockeye relative to the large abundance of co-migrating pink salmon.

Migration and Timing

The final in-season Area 20 migration date (peak) was earlier for Early Stuart sockeye and later for Early Summer, Summer, and Late run sockeye when compared to the pre-season timing estimates (Table 30).

Table 30.- Expected vs. Observed Timing by Stock Group

Stock	**Area 20 Timing**	
	Pre-season	**Final In-season**
Early Stuart	July 5	July 2
Early Summer	July 23	July 24
Summer run	August 3	August 10
Late run	August 12	August 17

Fraser River Environmental Conditions and Management Adjustment

The Fraser River discharge was above average for the early portion of the Early Stuart migration and below average for the remainder of the season. Conversely, water temperatures were above average (at times extreme) for the entire sockeye migration. High water temperatures can cause serious adverse effects on migratory fish. The figures below illustrate the observed in-season Fraser River discharges at Hope and temperatures at Qualark Creek as well as the corresponding estimated stock aggregate migration periods.

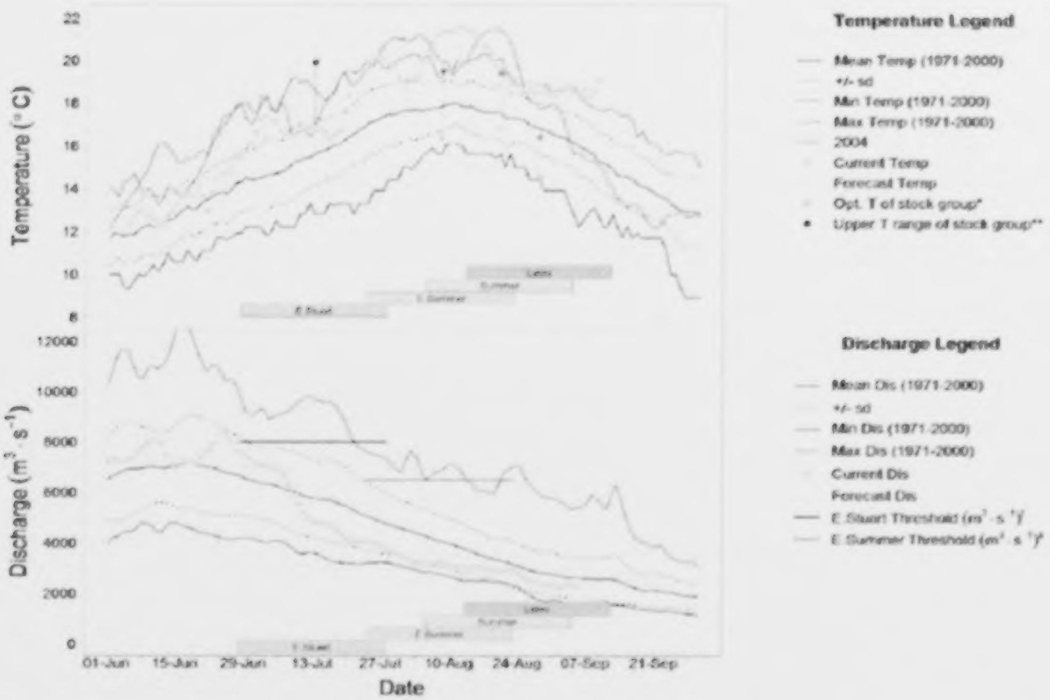


Figure 40.- Fraser River Discharge at Hope and Temperature at Qualark Creek

Management Adjustment models can use environmental conditions and run timing as inputs. Due to the high temperatures observed in July and August the Early Stuart, Early Summer, and Summer run MAs increased significantly from pre-season estimates.

Table 31.- Pre-season and In-season Management Adjustments

Stock	p50 Forecast	Pre-Season pMA	Pre-Season MA	Final In-season Run Size	Final In-Season pMA	Final In-Season MA[a]
Early Stuart	211,000	0.57	61,600	182,000	1.33	143,600
Early Summer	253,000	0.46	64,900	550,000	0.80	176,000
Summer	3,718,000	0.10	148,700	2,400,000	2.48	3,109,900
Late run	583,000	0.67	209,700	600,000	0.92	288,000

[a] Final in-season MA as of September 23, 2013.

Run Size

As the season progressed the FRP considered technical advice provided by the Pacific Salmon Commission, the Fraser River Panel Technical Committee members and bilaterally adopted run sizes that reflected in-season assessment information.

The final in-season run size estimates were higher than the pre-season p50 forecasts for the Early Summer and Late run management aggregates and slightly lower for the Early Stuart sockeye. The Summer run sockeye run size estimate was much lower, closer to the pre-season p25 forecast (see the Table below).

Table 32.- Pre-Season Forecasts vs. Final In-Season Run Size Estimates

Stock	**Pre-Season Forecast**			**Final In-Season Estimate (Sept 23)**
	25% Probability	**50% Probability**	**75% Probability**	
Early Stuart	137,000	211,000	331,000	182,000
Early Summer	130,000	253,000	468,000	550,000
Summer	2,095,000	3,718,000	6,663,000	2,400,000
Late	293,000	583,000	1,133,000	600,000
Total	**2,655,000**	**4,765,000**	**8,595,000**	**3,732,000**

Diversion Rate

The diversion rate of sockeye through Johnstone Strait was higher than forecast and estimated to be 71% (versus the 35% forecast). The figure below outlines diversion rate estimates in 2013 relative to other cycle years.

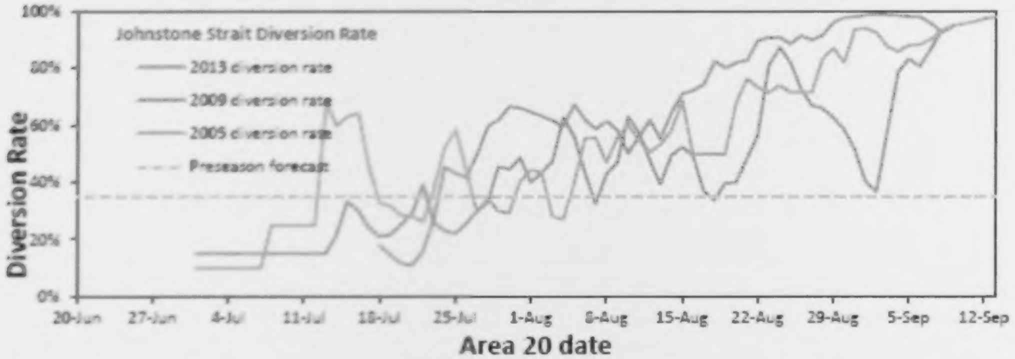


Figure 41.- The 2013 Diversion Rate Compared to Recent Diversion Estimates for the 2013 Cycle.

Fisheries

There were directed harvest opportunities for Fraser sockeye in First Nations FSC fisheries. With the exception of the use of fish for test fishing purposes, there were no directed commercial or recreational fisheries in Canada in 2013. Some small, incidental by-catch of Fraser sockeye occurred when conducting fisheries on other species.

Initially, Fraser River sockeye harvest opportunities were restricted for all harvest groups based on the requirement for a three week moving window closure to protect Early Stuart sockeye. During the Early Stuart window closure time period in-season assessments indicated there was limited TAC for this group designated under the Aboriginal Fishery Exemption (AFE). At the time there was a small harvest of Early Stuart sockeye in First Nations in-river FSC fisheries. As the season progressed in-season information indicated that there was Early Summer and Summer run TAC available. Some directed harvest occurred by First Nations for FSC purposes both in the marine and in-river fisheries. Within a short time, there was no TAC available for Summer run sockeye due to a decrease in run size and a large increase in the Management Adjustment. Some Late run TAC was also identified, but with no associated Summer run TAC, only fisheries that were selective and directed at other species could be prosecuted. Although there was no TAC for Summer run sockeye identified, in Canada there was directed harvest permitted in some terminal areas for FSC fisheries where First Nations had limited access to other species and stocks and observations in terminal areas indicated stronger than expected sockeye returns.

The Table 33 below outlines final in-season estimates of Fraser River sockeye catch in Canada and the U.S.

Table 33.- Final In-season Estimates of Fraser River Sockeye Catch in Canada & in the U.S.

Total Fraser Sockeye Caught [a]	**507,000**
Test fisheries (incl. Albion and Qualark)	100,300
Canadian Catch	**386,100**
Canadian First Nation FSC fisheries- Marine	123,400
Canadian First Nation FSC fisheries- Fraser	260,600
Canadian commercial fisheries (includes commercial selective & FN economic)	2,100
Canadian recreational fisheries	0
United States Catch	**20,600**
U.S. non-Treaty Indian fisheries	0
U.S. Treaty Indian fisheries	4,600
U.S. Treaty Indian ceremonial fisheries	15,900

[a] Preliminary in-season catch as of October 1, 2013 rounded to the nearest 100 fish. Does not include non-Fraser sockeye.

Total Allowable Catch

The TAC for Fraser sockeye is calculated using: run size estimates, the escapement plan, management adjustment, run timing, and estimates of test fishing catches. In-season, fisheries are planned using in-season information and are not conducted based on pre-season forecasts.

In 2013, generally fisheries were planned in Canada targeting the stock aggregates with available TAC. Other stock aggregates that could constrain fisheries were harvested incidentally to levels identified in Canada's Escapement Plan. The following table shows the pre-season and final in-season TAC and catch by aggregate.

Table 34.- Final In-season Estimates of Fraser River Sockeye Catch as of November 14, 2013 in Canada and the U.S.

Stock	**Pre-season total TAC**[a]	**Final In-season total TAC**[b]	**Final In-season Catch**[c,d]
Early Stuart	36,400	16,100	11,100
Early Summer	40,100	142,000	63,100
Summer	1,992,500	165,600	385,800
Late	51,400	108,100	47,000
Total	**2,120,400**	**431,800**	**507,000**

[a] TAC includes the Canadian Aboriginal Fisheries Exemption amount of 400,000 fish.

[b] Includes LAER of 10% for Early Stuarts and Summers, and 20% for Lates.

[c] Catch up to October 1, 2013 rounded to the nearest 100 fish.

[d] Includes catch from test fisheries.

The Table below outlines the final in-season TAC and catch for each country.

Table 35.- Final In-Season TAC and Final In-season Catch as of October 1, 2013.[a]

Stock	Early Stuart	Early Summer	Summer	Late	Total
Test Fisheries[b]	2,100	12,000	73,900	11,800	99,700
U.S. Catch					
Commercial	0	500	3,700	400	4,600
C&S	0	1,000	9,900	5,000	15,900
U.S. Total	0	1,500	13,600	5,400	20,600
U.S. TAC [c]	0	15,200	0	0	15,200
CDN Catch					
Commercial	0	0	1,200	900	2,100
Recreational	0	0	0	0	0
FSC	9,000	49,600	296,500	28,800	384,000
Other [d]	10	80	510	70	700
CDN Total	9,100	49,600	298,300	29,800	386,800
CDN TAC[e]	9,000	126,800	296,600	28,800	461,200

[a] Catch rounded to nearest 100 fish

[b] Includes Fraser sockeye catch in Panel approved Test Fisheries in U.S. waters.

[c] TAC as of October 5, 2013 (relinquishment date). Test fishing and AFE are actual catches.

[d] Other catch is sockeye captured in multi-species non-Panel approved test fisheries (Albion and Qualark).

[e] TAC as of October 5, 2013. Includes AFE.

Fraser Sockeye Exploitation Rates

The Table below outlines pre-season exploitation rate expectations based on the p50 forecast, pre-season MAs, 2013 Total Allowable Mortality (TAM) rules, and final in-season exploitation rate estimates based on final in-season estimates of run size and catch, along with the estimated final in-season exploitation rate after incorporating fishery induced mortalities.

Table 36.- Potential Exploitation Rates

	Pre-season [a]	Final In-season [b]	Final In-season [c]
Early Stuart	17%	6%	6%
Early Summer	16%	12%	12%
Summer	54%	16%	17%
Late	20%	8%	9%
Cultus [d]	20%	8%	9%

[a] ER is the max allowable ER based on 2013 TAM rules, pre-season pMAs, the lower allowable ER, and the p50 forecast

[b] ER is based on 2013 TAM rules, in-season pMAs, the lower allowable ER, the final adopted in-season run size and in-season catch

[c] Includes release mortalities

[d] ER is assumed to be the same as similarly timed Late-run stocks

Post-Season

Sockeye Migration and Escapement Estimates

Early Stuart sockeye did experience difficult migratory conditions in the Fraser River. As opposed to recent years where water discharges were extremely high throughout their migration, this year the discharge levels were high early in the migration, but more normal to below normal around the peak of the Early Stuart migration. Water temperatures were more of the concern, with high water temperatures early and late in the Early Stuart migration.

The 2013 preliminary escapement estimate of 86,202 Early Stuart sockeye is almost double the brood year (45,297) but only 34% of the recent (1992-2009) cycle average of 253,956. Spawning success for Early Stuart sockeye in 2013 is an estimated 87.2% (12.8% pre-spawn mortality), slightly below the long term average of 88.9%.

Early Summer run sockeye also experienced high water temperatures for the duration of their migration, at times reaching extremes when compared to historical temperature information. These high temperatures persisted for both the Summer run and Late run sockeye migrations into the river.

The 2013 preliminary escapement estimate of 217,789 Early Summer sockeye is triple the brood year (77,947) and 73% higher than the recent (1992-2009) cycle average of 125,926. This is the second largest Early Summer run sockeye spawning escapement on record for this cycle year. The estimated spawning success for the Early Summer run aggregate in 2013 is 90.1%, which is similar to the long term average of 89.5%.

The Table below outlines the predicted escapement relative to the escapement goals at the final in-season sockeye run sizes. Spawning ground estimates for Summer run and Late run sockeye are currently not available.

Table 37.- Preliminary Escapement Information to Date

Management Group	Escapement Goal @ final in-season run size [a]	Predicted Diff. Btw Estimates (DBE) [b]	Predicted Spawn. Escapement [c]	Prelim. Spawn. Escapement [d]
Early Stuart	108,000	-57%	73,595	86,158
Early Summer	220,000	-44%	304,879	212,299
Summer	1,254,000	-71%	713,666	Not Available
Late-run	313,000	-48%	300,295	Not Available
Total	***1,895,000***		***1,392,435***	

[a] Spawning Escapement Target based on adopted run size and Canada's escapement plan.

[b] DBEs are calculated from the final in-season Fraser Panel adopted proportional MA values

[c] Predicted spawning escapement: Run Size - Catch to date + DBE. In-season estimates as of Sept 23 2013.

[d] Preliminary adult spawning escapement estimates. Preliminary Summer and Late spawning ground estimates will be available in January 2014. There were no adult Fraser Pink spawning ground assessments conducted in 2013.

Post-season Catch Estimates

The current estimates of catch in this report are final in-season estimates as of October 1, 2013 and will likely increase slightly when the post-season catch estimates are finalized. Preliminary post season estimates of catch by stock group will be available in January 2014.

Fraser River Pink

Pre-season Assessment

In 2013, the Fraser pink forecast was highly uncertain given the changes to the assessment methods through time. The median (50% probability) forecast for Fraser River pink salmon was 8.9 million, with 25% and 75% probability levels of 6.4 million and 12.5 million respectively. The DFO forecast 50% date (peak timing) for Fraser pink salmon arriving to Area 20 was August 28 and the pre-season diversion rate estimate through Johnstone Strait was predicted to be 41%.

The escapement strategy for Fraser River pink salmon continues to be based on an interim escapement goal of 6 million Fraser River pink salmon; with an escapement target of 30% of the total return for run sizes above 20 million. The Table below outlines total allowable mortality rules for various Fraser pink run sizes. The total allowable mortality at the p50 pre-season run size forecast is 33%.

Table 38.- 2013 Fraser River Pink Escapement Plan- Pre-season Run Size Estimates and Allowable Exploitation Rates.

Fraser Pinks

7,059,000	Lower Fishery Reference Point					
20,000,000	Upper Fishery Reference Point					
70%	Maximum Exploitation Rate					
		Pre-season Forecast Return				
		p10	p25	p50	p75	p90
	forecast	4,794,000	6,401,000	**8,926,000**	12,473,000	17,111,000
	escapement target	4,306,000	5,530,000	**6,000,000**	6,000,000	6,000,000
	allowable ER	10%	14%	33%	52%	65%

In 2013 there were pre-season concerns expressed by Canada and the US around sockeye by-catch in directed pink fisheries as there could be limited sockeye TAC available when pink fisheries were anticipated. Both parties agreed that pink fisheries would be undertaken while striving to stay within sockeye harvest constraints.

Due to conservation concerns for some co-migrating species, it was anticipated that, similar to previous years, alternative fishing gear may be employed to access Fraser Pink TAC. Alternative gears used in the past have included beach seines & shallow seines in the Fraser River.

In-Season Assessment

There was no change between the pre-season peak timing date (August 28) and the final in-season estimate. The final in-season annual diversion rate through Johnstone Strait was higher than expected and estimated to be 65%.

As the season progressed the Fraser River Panel (FRP) considered technical advice provided by the Pacific Salmon Commission (PSC), the Fraser River Panel Technical Committee (FRPTC) members and bilaterally adopted run sizes that reflected in-season assessment information. On September 6 the FRP adopted a final in-season run size estimate of 26 million Fraser River pink, which is well above the p90 forecast level of 17 million. The following table highlights the timeline of run size changes that were adopted by the FRP.

Table 39.- Timeline of Run Size Changes Adopted by FRP in 2013.

Stock	Preseason	Aug 23	Aug 27	Aug 29	Sept 3	Sept 6
Fraser Pink	8,926,000	**10,000,000**	**14,000,000**	**16,000,000**	**24,000,000**	**26,000,000**

Standard in-season run size estimates for Fraser River pink salmon are based on marine area test fishery CPUE multiplied by historical expansion lines. A review of the Mission hydroacoustic data and DIDSON data will be analyzed post-season to generate an alternative Fraser pink passage estimate at Mission. When added to catch estimates (seaward of Mission), this may provide an alternative to the test fishery based estimates of total pink salmon run size. This approach is supported given there is no comprehensive spawning ground assessment programs for Fraser pinks.

First Nations

There were directed pink harvest opportunities for First Nations (FSC), and commercial fisheries (including First Nations demonstration and economic opportunities). The majority of First Nation FSC harvesting occurred in early August in the marine approach areas

Commercial

Commercial fisheries occurred from early to late September. In marine waters, Canada managed the majority of the Fraser River pink fisheries as an Area B Seine and Area H Troll pink Individual Transferable Quota (ITQ) Demonstration Fishery. Fraser River pink salmon accounting included retained catch and Fraser River sockeye salmon accounting was based on total mortalities, including retained catch and assessed release mortalities. Sockeye were to be released, however there were some landings of sockeye recorded in the pink validations.

For any pink or sockeye retained, catches were attributed to available vessel ITQ. Sockeye release mortalities were attributed to available vessel ITQ based on the sockeye to pink salmon encounters (as determined by independent observer data by area and gear), the validated pink catch, and the number of sockeye retained.

There were no Area D and E Gill net fisheries for Fraser pinks or sockeye.

First Nations economic opportunity and demonstration fisheries occurred at various locations in the Fraser watershed in 2013.

Recreational

Fraser River pink recreational harvest opportunities were available in marine areas and in the Fraser River.

The table below outlines preliminary Fraser pink catch estimates in Canada and the United States in 2013.

Table 40.- Preliminary Fraser Pink Catch Estimates in Canada and US in 2013

Total Fraser Pink Caught [a]	**5,994,600**
Test fisheries (including Albion and Qualark)	38,100
Canadian Catch	**2,894,700**
Canadian commercial fisheries (includes commercial selective & First Nation economic and demonstration fisheries)	2,855,400
Canadian First Nation FSC fisheries	9,900
Canadian recreational fisheries	29,400
United States Catch	**3,061,800**

[a] Preliminary in-season catch as of October 1, 2013 rounded to the nearest 100 fish. Does not include non-Fraser pink catch.

Post-Season Escapement and Catch

Since 2003, the final estimate of escapement has been calculated as the final run size minus catch (comprehensive spawning ground estimates for pink salmon have not been undertaken since 2001). The preliminary in-season net escapement estimate for the 2013 return is 22,345,000 pink salmon.

Post-season catch estimates will be available in January 2014. The post-season catch of Fraser pinks will likely be much higher than the in-season estimates outlined above. Preliminary data suggests an additional 300,000 Fraser pinks were likely caught in Fraser River Economic Opportunity and Demonstration fisheries. Non-Fraser pink catch was estimated to be 1,378,000 pinks.

Southern B.C. Aggregate Abundance-Based Management Chinook

Objectives and Overview

Chinook fisheries are managed by either an aggregate abundance-based management (AABM) or individual stock-based management regime. Allowable harvest impacts in AABM areas are determined by provisions in the Pacific Salmon Treaty and subject to domestic considerations, such as conservation and allocation. In Southern B.C., all AABM Chinook fisheries are located off the West Coast Vancouver Island (WCVI), including components of the recreational fishery, First Nations fisheries, and the WCVI Area G troll fishery.

For the period October 2012 through September 2013, the forecast Chinook abundance index was 0.77 of the PST base period. Therefore, under treaty provisions, the maximum allowable catch was 115,300 Chinook for WCVI AABM fisheries; which includes a 30% reduction consistent with the treaty provisions that came into effect in January 2009.

Of this total, 74,227 was the pre-season expected catch for the offshore recreational and First Nations fisheries. The remaining 41,073 Chinook were allocated to the commercial fisheries (Area G and T'aaq-wiihak).

Further considerations for managing Chinook catch in WCVI AABM fisheries are driven by concerns regarding the low status of natural WCVI, Lower Strait of Georgia (LGS), and Spring 42/52 and summer 52 Fraser River Chinook and Interior Fraser coho populations.

Several ocean fisheries in Canada intercept WCVI origin Chinook, including Northern troll, Queen Charlotte Islands (Haida Gwaii) sport, WCVI troll and WCVI sport. Ocean fisheries are limited to a 10% exploitation rate, even if PST provisions allow for a higher catch. Management measures are in place to reduce the impact of fisheries on WCVI origin Chinook while still providing harvest opportunities.

Continued efforts were made in 2013 to limit the impact of the troll fishery on low status Chinook populations, including time and area constraints, and limits on effort (boat-days) to protect stocks of concern.

AABM Chinook catch and release information from all fisheries can be found in Table 57.

Table 41.- Pre-Season and Post-Season Total Allowable and Preliminary Catch Estimates for October 2012-September 2013 WCVI AABM Chinook

	Pre-Season	Post-Season
WCVI AABM Abundance Index	0.77	under review
WCVI AABM Chinook TAC	115,300	under review
AABM Recreational Catch	60,000	61,712
First Nations Catch (FSC)	5,000	3955**
Maa-nulth First Nations Catch (FSC)	3,927	1,710**
T'aaq-wiihak Catch	5,300	7,650
Area G Troll Catch	**41,073***	35,393
Total AABM Catch		**110,179**

*The total Area G troll TAC is calculated as the difference between the WCVI AABM Chinook TAC less offshore recreational catch, NTC First Nations Expected FSC catch, Maa Nulth Domestic Allocation and T'aaq wiihak Allocation.
**First Nations catch is under review.

Recreational

The WCVI AABM recreational Chinook fishery primarily takes place in offshore areas 121-127 from May-September. Catch and effort are largely driven by abundance and change annually; weather can also be a factor at certain times of the year. Management measures include a 77 cm maximum size limit in those portions of Areas 123-127 that lie shoreward of a line drawn 1-mile seaward of the surf line. This area is commonly referred to as the 'Chinook Corridor', and is in place to protect migrating WCVI origin Chinook. In areas along the WCVI, where hatchery origin Chinook are considered to make up a high portion of the recreational catch, anglers are permitted to retain two (2) Chinook per day of which one (1) can be larger than 77 cm. The mandatory use of barbless hooks, and a daily limit of two (2) Chinook are also in place.

Chinook catch in the AABM recreational fishery is estimated through several catch monitoring programs, including a creel survey, a logbook program and DFO's electronic survey iREC. The creel survey continues to be the most utilized catch monitoring program in this area particularly because it collects effort (number of boat trips), and catch per unit effort data. Catch for any given species within a defined time-area stratum is estimated by multiplying effort by CPUE. Total effort is estimated through vessel counts, gathered through either aerial or on-water boat surveys of the fishing area. CPUE is estimated from interviews with anglers at specific landing sites and from trip logbooks and manifests submitted by lodges and guides through a voluntary monitoring program. Data regarding the daily activity profile of the fishery, fishing locations, and the proportion of guided versus un-guided effort are also gathered from angler interviews.

Total recreational catch and release in the 2013 WCVI AABM fishery was estimated to be 61,712 and 56,100 Chinook, respectively, during the survey period (June-Sept). Previous sampling has indicated that there is minimal recreational effort outside of this period and catch is expected to be low.

Effort in the AABM area for 2013 was 28,534 boat trips.

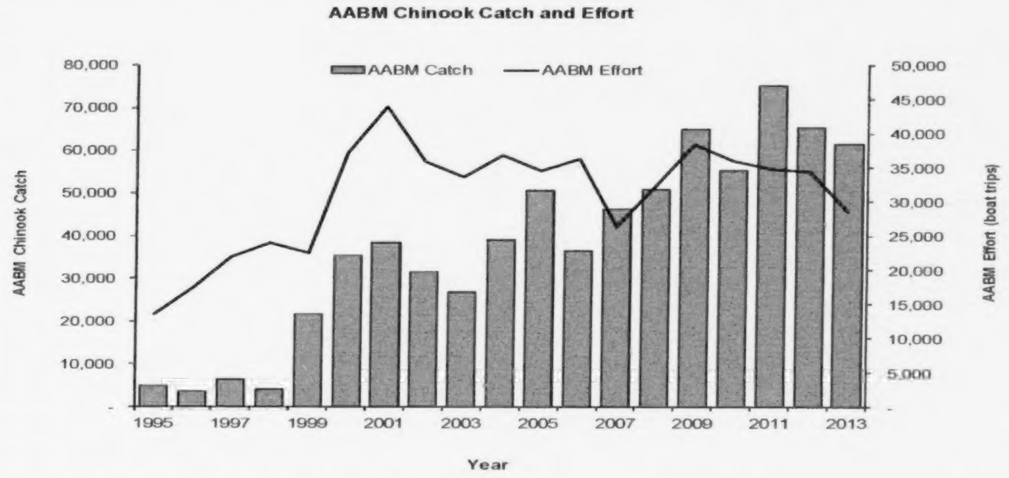


Figure 42.- Preliminary Recreational WCVI Chinook AABM Catch and Effort, 1995-2013

Table 42.- Preliminary Estimates of WCVI Recreational AABM Effort, Chinook Catch, and Chinook Releases by PFMA, 2013

2013	Area	AABM Effort (Boat Trips)	AABM Chinook Catch	AABM Chinook Releases
Inshore	Juan de Fuca (20W)	-	-	-
	Area 21	142	63	64
	Alberni Inlet (23)	5,047	-	70
	Barkley Sound (23)	4,782	5,503	6,632
	Clayoquot (24)	829	2,026	286
	Nootka (25)	-	-	-
	Kyuquot (26)	120	214	-
	Quatsino (27)	243	274	-
Offshore	Area 121	2,161	9,884	9,631
	Area 123	6,110	21,868	30,462
	Area 124	2,060	6,145	3,490
	Area 125	1,814	3,018	1,310
	Area 126	2,205	6,181	2,214
	Area 127	3,022	6,537	1,939
Total		28,534	61,712	56,100

First Nations

The 2013 WCVI NTC First Nations AABM Chinook reported catch was 1,540 and catch from Maa-nulth Nations domestic fisheries was estimated at 1,715. Total AABM Chinook reported for First Nations FSC and domestic fisheries was 3,955.

Commercial

After the completion of the April 2013 Chinook Technical Committee (CTC) Chinook model calibration, the WCVI AABM Canadian allowable harvest was 115,300. The FSC harvest was set at 8,937; and the recreational expected catch was 60,000, leaving 46,363 available for commercial harvest. The commercial TAC was apportioned with 88.6% to Area G Troll and 11.4% to the T'aaq wiihak First Nations Demonstration fishery. The Area G Troll TAC was 41,073 Chinook. The total estimated Area G troll catch was 35,393 Chinook. The T'aaq wiihak First Nations TAC was 5,300 Chinook. The total estimated T'aaq wiihak First Nations catch was 7,650 Chinook.

For the 2012/2013 Chinook year, fisheries continued to be shaped by conservation concerns for the following domestic stocks: Spring 42/52 and summer 52 Fraser River Chinook, Interior Fraser River coho, WCVI origin Chinook salmon, and LGS Chinook.

Area G Troll Summary

The Area G Troll annual management plan is designed to maintain exploitation rates on stocks of concern within established limits by the use of fishing time and area closures in conjunction with fishing effort limits. The management plan distributes catch and effort throughout the fishing year.

The management plan is subject to change as required to address specific conservation concerns as they arise. For the 2013 fishing season the following changes to annual fishing plan were implemented:

- Conservation measures introduced in the Area G troll fishery in 2011-12 to address low returns of Fraser spring and summer 5/2 were implemented again in the 2012-13 season. For Area G troll that meant there was no June or July fisheries.

- To avoid exceeding the overall WCVI AABM TAC, 20% of the Area G TAC was allocated to September fisheries. If preliminary AABM catch estimates to August 31 indicate the overall WCVI AABM TAC may be exceeded, the Area G TAC set aside for September would be used to assist Canada with staying within its overall WCVI Chinook TAC.

- Retention of all coho salmon bycatch was permitted in Areas 125, 126 and 127 in all openings between September 15 to December 31; and, between October 1 and December 31 for Areas 123 and 124.

Area G Troll Fishing Periods

October to March period
During the period from October 1 to March 15, a harvest level of approximately 20% of the Area G annual TAC was recommended, based on the PST Chinook model calibration and assigned harvest levels for the outer WCVI area.

March 16 to April 18 period
A full time-area closure was maintained from March 16 to April 18 annually to avoid interception of spring 42/52 and summer 52 Fraser River Chinook.

Late April/ mid-June period

During the period from April 19 to June 15, a harvest of approximately 40% of the Area G annual TAC was recommended, based on the PST Chinook model calibration and assigned harvest levels for the outer WCVI area. In addition, effort (boat-days) was limited to recent year averages, and areas of SWVI were closed until May 7 (partial openings from May 2-7) in order to avoid interception of spring 42/52 and summer 52 Fraser River Chinook.

June 16 to July 23 period

A full time-area closure was maintained from June 15 to July 23 in Management Areas 125 to 127 and from June 16 to July 31 in Management Areas 123 to 124 to avoid interception of spring 42/52 and summer 52 Fraser River Chinook.

July 24 through early August

During this period, a harvest of approximately 20% of the Area G annual TAC was recommended, based on the PST Chinook model calibration and assigned harvest levels for the outer WCVI area. In addition, the fishery was managed to minimize mortality on wild coho through: i) a maximum interception of coho, and ii) the mandatory use of large (minimum 6") plugs. As well, the fishery was managed to minimize mortality of WCVI origin Chinook through the use of time-area closures of near shore areas ("Chinook conservation corridor") where WCVI Chinook stocks are prevalent.

September period

During the September period, a harvest of approximately 20% of the Area G annual TAC was recommended based on the PST Chinook model calibration and assigned harvest levels for the outer WCVI area. The Area G harvest level in September has the potential to increase if there is available remaining WCVI AABM TAC after accounting for First Nation FSC and recreational fisheries. However, if First Nations or the recreational sector exceed their expected catch the available Area G TAC is reduced. For any harvest opportunities prior to September 15 to December 31, retention of all coho salmon bycatch was permitted in Areas 125, 126 and 127 in all openings; and, between October 1 and December 31 for Areas 123 and 124.

For all troll fisheries, selective fishing practices were mandatory, including single barbless hooks and revival tanks for resuscitating non-retention species prior to release.

Since 1999, a major objective for the management of the WCVI troll fishery has been to distribute the catch throughout the fall-winter-spring-summer periods. This objective was continued in 2012/2013.

The late July and August plug fisheries were monitored to determine encounter rates of other species and estimate numbers of released Chinook. Biological sampling was conducted for size distributions, and stock compositions (Coded Wire Tags, DNA and otolith samples).

Table 43.- Post-Season Preliminary Monthly Catch Estimates for 2007/08 to 2011/12 WCVI AABM Chinook Troll Fisheries

	2012/2013	2011/2012	2010/2011	2009/2010	2008/2009
October	3,344	0	0	0	1,882
November	230	57	0	0	1,209
December	312	188	0	0	1,107
January	1,018	129	0	0	3,394
February	358	542	1,849	0	1,540
March	501	243	875	0	586
April	1,374	10,493	8,670	8,553	3,616
May	25,737	22,334	41,239	31,296	18,062
June	0	0	34,394	23,652	12,165
July	0	0	15,619*	0	0
August	0	4,280*	21,284*	11,642*	9,630*
September	2,519	17,264	0	3,980	0
Total	**35,393**	**55,530**	**123,930**	**79,123**	**53,191**

*Plug fishery

T'aaq wiihak First Nations Demonstration Fishery Summary

In addition to other considerations relating to aboriginal rights, DFO acknowledges that, in its November 3, 2009, the British Columbia Supreme Court decision in Ahousaht Indian Band et al. v Canada and British Columbia, the Supreme Court found the plaintiffs (five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island – Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht) have what the Court recognized as "aboriginal rights to fish for any species of fish within their Fishing Territories and to sell that fish."

The B.C. Court of Appeal subsequently confirmed the B.C. Supreme Court decision, except that it found that the rights do not included geoduck. The consultations and negotiations between the DFO and the Ahousaht five plaintiff First Nations, self-designated as T'aaq-wiihak, commenced in April 2010.

Part of this consultation and negotiation process involved the continuation of an AABM Chinook salmon demonstration fishery for the 2013 fishing season. The fishery was carried out in portions of statistical Areas 24, 25, 26, 124, 125 and 126 on the west coast of Vancouver Island between April 19th and August 11th, 2013. The fishery was managed similar to the Area G fishery with the exception of a limited June fishery which occurred when Area G was closed. Total catch estimated for the fishery was 7,650 Chinook.

The fishery was monitored by T'aaq-wiihak fishery monitors, independent observers and DFO staff. Biological samples for DNA, and heads from salmon indicating presence of a coded wire tag, were collected by J.O. Thomas and Associates.

Southern B.C. ISBM Chinook

Objectives and overview

In addition to the PST regime, Canada implemented management actions as required to ensure conservation of Canadian origin Chinook and to meet domestic allocation requirements. These Chinook fisheries were managed to harvest rates on an individual stock basis (ISBM).

Measures were taken in 2013 in First Nations FSC, recreational and commercial Chinook fisheries to protect WCVI, LGS, Spring 42 and Spring/Summer 52 Fraser River Chinook stocks. FSC management actions included time and area closures and reduced fishing times. Recreational measures included barbless hooks, time/area closures, size restrictions and mark selective fisheries. Commercial measures included barbless hooks, time and area closures, gear restrictions, mandatory use of revival tanks, daily catch reporting, mandatory logbooks, hailing catches on a regular basis, and independent on-board observers on vessels when requested. Post-release mortality information for Chinook included in ISBM management was determined from studies conducted in 2000-2001 and detailed in the Canadian Stock Assessment Secretariat, Research Document 99/128 (CSAS, Doc 99/127.). The recreational post-release mortality rate for Chinook is 15%.

Specific management actions were taken to protect WCVI origin Chinook in Canadian ocean fisheries (not including enhanced terminal areas), the harvest of which was restricted to an exploitation rate of 10%.

Most Southern B.C. commercial fisheries were regulated so that impact on WCVI wild Chinook stocks was minimized, with the exception of terminal recreational, commercial and First Nations fisheries.

Lower Strait of Georgia (LGS) Chinook stocks are improving from historic lows seen in 2009 and are rebuilding slowly. Significant management measures in the recreational and commercial fisheries continued to be in place throughout 2013 to protect these stocks. Some LGS Chinook stocks are seeing a gradual increase in terminal returns, particularly in the Cowichan River, which is encouraging. Overall their productivity and their Salmon Outlook category remains low.

Spring 42 Fraser River Chinook and Spring/Summer 52 Fraser River Chinook stocks had specific management measures in place to reduce exploitation in FSC, recreational and commercial fisheries. FSC management actions in the Fraser River included time and area closures and reduced fishing times. Recreational fisheries in Juan de Fuca Strait, the Strait of Georgia and the approach waters of the Fraser River had specific time, area, size and mark selective restrictions designed to minimize the amount of exploitation on these Chinook stocks. Fraser River tidal and non-tidal recreational fisheries had delayed start up times, implemented to protect Spring 42 Fraser River Chinook and Spring/Summer Fraser River 52 Chinook stocks. Commercial troll fisheries on the WCVI were also managed with time and area closures in 2013 for Spring/Summer Fraser Chinook stocks.

ISBM Chinook catch and release information from all fisheries can be found in Table 58.

Recreational

West Coast Vancouver Island

WCVI recreational ISBM fisheries are managed to fall within Canada's 10% exploitation rate on WCVI wild Chinook. To help achieve this objective a slot limit was put into place in the Chinook management corridor, which is an area one nautical mile seaward of the surfline extending from Areas 123 to 127. In the past, the slot limit for Chinook in the corridor was one fish greater and one fish smaller than 77cm. It should be noted that the majority of male Chinook are 3 year olds and are less than 77cm. However, more recently there was a requirement to protect wild 4 and 5 year old female Chinook greater than 77cm that were returning to spawn in natal systems along the WCVI. Therefore, the management measure of retaining only two Chinook less than 77cm was continued with the restriction starting July 15th in those waters north of Estevan Point and August 1st for those waters south of Estevan Point. These restrictions expire after September 30 and October 15, respectively.

Retention of Chinook greater than 77cm is permitted in some terminal areas of Nootka and Barkley Sound where there is a large hatchery contribution to the ISBM Chinook harvest. In Port San Juan, Chinook non-retention restrictions were in effect from July 15 through October 25 to protect San Juan Chinook. Barbless hooks, a daily limit of 2 Chinook per day and an annual limit of 30 were also in effect.

Table 44.- Estimated WCVI Recreational ISBM Effort, Chinook Catch and Release by PFMA, 2013.

2013	Area	ISBM Effort (Boat Trips)	ISBM Chinook Catch	ISBM Chinook Releases
Inshore	Juan de Fuca (20W)	7793	12594	8180
	Area 21	412	33	62
	Alberni Inlet (23)	7332	84	1953
	Barkley Sound (23)	10455	3420	8909
	Clayoquot (24)	1506	205	1185
	Nootka (25)	10815	15957	12030
	Kyuquot (26)	639	712	722
	Quatsino (27)	2620	2514	1470
Total		41571	35519	34511

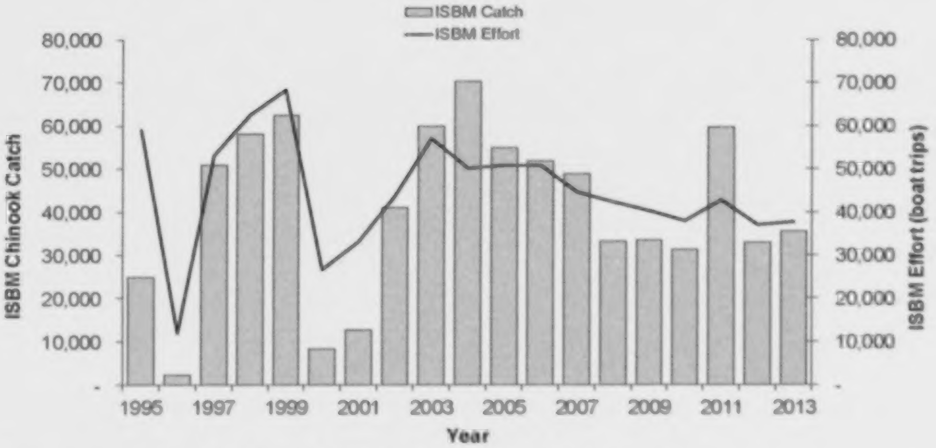


Figure 43.- Recreational WCVI Chinook ISBM Catch and Effort, 1995-2013

West Coast Vancouver Island Terminal Areas

Somass/ Stamp

During 2013 there was a non-tidal opening on the Somass/Stamp River (Area 23) with Chinook non-retention from August 25, 2013 to December 31, 2013. The daily limit was two salmon per day. Anglers were not allowed to retain Chinook because of the low forecast for Robertson Creek hatchery returns. The Somass/Stamp Rivers were not monitored by creel survey during 2013.

Nitinat

During 2013 there was a planned non-tidal opening for the Nitinat River (Area 22) from August 25, 2013 to September 30, 2013. The daily limit was four salmon per day of which only two could be Chinook salmon and only one could be greater than 77 cm in length. The salmon fishery was closed for retention of Chinook from October 1 until October 15 to protect Chinook salmon during the peak spawning period. The fishery re-opened from October 15 until December 31 with zero retention on Chinook salmon. The Nitinat River was not monitored by creel survey during 2013. The area above Parker Creek was closed to fishing

Conuma

During 2013 there was a non-tidal opening for the Conuma River (Area 25) from August 25, 2013 to December 31, 2013. The daily limit was four salmon per day of which two could be Chinook salmon and one could be greater than 77 cm in length. The Conuma River was not monitored by creel survey during 2013.

Inside Areas: Strait of Georgia, Johnstone Strait, and Juan de Fuca Strait

Recreational fisheries in 2013 in these areas were designed to minimize impact on returning Fraser River Spring 42 Chinook, and Fraser River Spring and Summer 52 Chinook management measures put in place to protect these stocks included mark selective fisheries and size limits in specific areas/times.

In those waters near Victoria between Cadboro Point and Sheringham Point (Areas 19-1 to 19-4 and Area 20-5), retention regulations were adjusted from March 1 to June 14 where anglers were permitted to retain two (2) Chinook per day wild or hatchery marked between of 45cm and 67cm or hatchery marked only Chinook over 67 cm in length. From June 15 to July 19 the daily limit remained at two (2) Chinook per day wild or hatchery between 45-85 cm, or hatchery marked greater than 85 cm.

The "Chinook corridor" extending from Subareas 18-1 to 18-6, 18-9, 18-11, 19-5 and a portion of 29-4 and 20-5 that lies south from a point on the east side of Valdes Island and extending 57 degrees true for 5 nautical miles remained in place in 2013. In this corridor the daily limit was two (2) Chinook with a minimum size of 62 cm of which only one (1) could be over 67 cm from May 16 to June 14. From June 15 to July 19 the daily limit was two (2) Chinook per day wild or hatchery between 67-85 cm, and this was a change for 2013 compared to the year previous, as returns were anticipated to be very poor.

Concern for Cowichan River Chinook also prompted a restriction in Subareas 18-6 and 18-7 and 19-7 to 19-12. These areas saw Chinook non-retention measures in effect from August 1 through October 15. Additionally, a portion of Subarea 18-7 and 18-8 east of a line from Separation Point to Wilcuma Wharf in Cowichan Bay, across Satellite Channel to Saltspring Island was closed to all finfish fishing from August 1 through October 15. Cowichan Bay west of the Separation/Wilcuma line was closed to all finfish fishing from August 1 through October 21. Chinook non-retention remained in effect until October 31.

For the Johnstone Strait and Strait of Georgia areas Chinook regulations included an annual limit of 15 Chinook, a daily limit of two (2) Chinook and a minimum size limit of 62 cm. For the Canadian portion of Juan de Fuca Strait south of Cadboro Point, regulations included an annual limit of 20 Chinook, a daily limit of two (2) Chinook and a minimum size limit of 45 cm.

Strait of Georgia, Johnstone Strait, and Juan de Fuca Strait Tributaries

Restrictions were also in effect on many tributaries within the Strait of Georgia, Johnstone Strait and the Strait of Juan de Fuca. The Qualicum River provided some opportunity to harvest enhanced stocks.

The Qualicum River opened for Chinook on August 1 and remained open until the end of the year. Through October 15th the daily limit was 4 salmon none of which could be greater than 62 cm. After October 15th, two of the four Chinook that anglers were permitted to retain could be greater than 62 cm. The Little Qualicum

River was open from October 1st until November 30th with a daily limit of 1. In both systems there was a minimum size limit of 30 cm, anglers were restricted to the use of barbless hooks and there was an annual limit of 10 Chinook salmon greater than 50 cm. No catch monitoring effort is directed at these fisheries.

Fraser River and Tributaries

Fraser River Spring 42, as well as Fraser River Spring/Summer 52 Chinook stocks of concern entering the Fraser River in Subareas 29-6, 29-7, 29-9 and 29-10 required additional management measures again in 2013 due to continued concerns about stock status. Starting May 16 to July 26 the daily limit for Chinook was zero. The daily limit was increased to two (2) wild or hatchery marked fish with a minimum length of 62 cm from July 27th to December 31st.

In the tidal (Subareas 29-11 to 29-17) and the non-tidal areas (Region 2) of the Fraser River there was no fishing for salmon from January 1st to July 26th. From July 27th to August 31st the daily limit was four (4) with only one (1) over 50 cm. From September 1st to December 31st the daily limit for wild or hatchery marked Chinook salmon was four (4) with only one (1) over 62 cm.

In addition, there were several tributaries to the Fraser River in which Chinook retention was authorized including:

- Alouette River, daily limit of one (1) Chinook from July 1st to December 31st.
- The Chehalis River, daily limit of four (4) with only one over 50 cm from June 1st until August 10th and again from September 16th until December 31st, a daily limit of four (4) Chinook with only one over 62 cm.
- The Chilliwack/Vedder River, daily limit of four (4) with only one over 62 cm from July 1st until December 31st.
- The Harrison River, daily limit of four (4) with only one over 62 cm from September 1st until December 31st.

Tributaries to the Fraser River above Sawmill Creek in which Chinook retention was authorized included:

Region 3

- Fraser River: No fishing for salmon until Aug 21, then 4 Chinook per day, none over 50 cm until Sep 15.
- Clearwater and North Thompson: No fishing for salmon.
- Thompson River downstream of the confluence of the North and South Thompson rivers: No fishing for salmon until Aug 31 (Kamloops Lake) and Sept 6 (Thompson River).
- Kamloops Lake: Aug 31 – Sep 22, 4 Chinook per day, 1 over 50 cm.
- Kamloops Lake outlet, Thompson River to Goldpan, Sep 6 – Sep 30, Chinook and pink, daily aggregate of 4, one may be a Chinook over 50 cm.
- Thompson River: Goldpan to the Fraser, Chinook, none over 50 cm, Sep 6 – Sep 30.
- South Thompson River: 4 Chinook per day, 2 over 50 cm, Aug 16 – Sep 22.

Region 8

- Osoyoos Lake: Aug 1 – Aug 18, 2 sockeye per day.
- Mabel Lake and Lower Shuswap River: Jul 25 – Aug 15, 1 Chinook per day over 77cm, then Aug 16 – Sep 12, 4 Chinook per day and 2 over 50 cm.
- Middle Shuswap River: Jul 25 – Aug 15, 1 Chinook per day must be over 77 cm.

Note that this year, there was no fishing for salmon in Region 5A or 7 as a result of Spring and Summer 5(2) management.

In 2013 marine recreational fisheries were monitored by creel surveys in three main areas: 1) Juan de Fuca including Victoria (south of Cadboro Point) and Juan de Fuca Strait through PFMA 20-1; 2) Strait of Georgia including Areas 14 through 18, that portion of Area 19 north of Cadboro Point, 28 and 29; and 3) Johnstone Strait including Areas 11 to 13. Monitoring of the Strait of Georgia sport fishery (May to September) and Juan de Fuca Strait sport fishery (February to December) has been fairly consistent from year to year using an access point (landing site) survey for collecting catch, CPUE, and biological information combined with an aerial survey for effort counts. In addition, logbook programs, directed at estimating the recreational catch by fishing guides during guided trips, were conducted in the Campbell River and Victoria Areas in 2013. The Johnstone Strait creel survey commenced in Area 13 in May and continued through until the end of September; and from June through August to include Areas 11 and 12.

Overall, effort increased the Strait of Georgia and Juan de Fuca Strait by 34% and 18%, respectively, from 2010 to 2013. The corresponding Chinook catch increased by about 51% in the Strait of Georgia and decreased by about 17% in Juan de Fuca from 2010 to 2013. Interestingly, Chinook releases increased by a similar amount to kept catch from 2010 to 2013 (approx. 48%) in the Strait of Georgia, while Chinook releases in Juan de Fuca increased by 150% from 2010 to 2013. Estimates of kept and released catch, along with effort and survey duration are summarized in Table 45.

Table 45.- Preliminary Catch and Effort Estimates for Southern B.C. Inside Recreational ISBM Fisheries in 2013.

Fishing Area	Survey Period	Chinook Kept	Chinook Released	Effort (Boat Trips)
Strait of Georgia	Mar - Oct	11,580	49,889	45,100
Johnstone Strait	Jun - Sep	21,935	32,267	38,139
Juan de Fuca Strait	Mar- Oct	22,922	18,000	46,982
Fraser River [1]	Jul - Oct	2,527	199	n/a
TOTAL		**58,964**	**100,355**	**130,221**

[1] subject to change; Fraser River recreational assessments are incomplete or preliminary as of November 26, 2013

First Nations

WCVI FSC and Economic Opportunity Fisheries

In 2013 an agreement was reached with the Hupacasath and Tseshaht First Nations for an economic opportunity fishery; however, the low forecast of Robertson Creek Chinook prevented any commercial fishery. Hupacasath and Tseshaht First Nations closed their fishing areas to Chinook retention voluntarily, choosing not to harvest the allotted 1500 pieces allocated for FSC. There was an incidental harvest during coho and chum fisheries of approximately 200 Chinook. Catch reports for Maa-nulth domestic harvest indicate a combined ISBM FSC Chinook harvest of 59 pieces. NTC First Nations ISBM catch reported to date was 842 pieces. The total WCVI ISBM Chinook catch was 1,101.

WCVI Excess Salmon to Spawning Requirements (ESSR) Fisheries

The Tseshaht and Hupacasath First Nations were issued a joint Excess Salmon to Spawning Requirements (ESSR) Licence for Chinook at the Robertson Creek Hatchery facility. The total catch was 21,967 Chinook (including jacks).
The Ditidaht First Nation was issued an ESSR Licence for Chinook at Nitinat Lake and the Nitinat Hatchery. The catch was 15,629 Chinook. The total catch for both ESSR fisheries was 37,596 Chinook.

Strait of Georgia FSC Fisheries

Data are still being compiled on various First Nations catches in the Strait of Georgia; however, preliminary catch is estimated at 843 Chinook. There were no economic opportunity fisheries.

Strait of Georgia ESSR Fisheries

There was an ESSR fishery at the Big Qualicum hatchery; total harvest was 2,266 Chinook salmon.

Strait of Georgia Economic Opportunity Fisheries

There were no Economic Opportunity fisheries in the Strait of Georgia in 2013.

Johnstone Strait FSC Fisheries

Data are still being compiled on various First Nations catches in Johnstone Strait; however, preliminary catch is estimated at 258 Chinook. There were no economic opportunity fisheries.

Fraser River FSC, Economic Opportunity and Inland Demonstration Fisheries

FSC fisheries, economic opportunity and inland demonstration fisheries took place in the Fraser River in 2013, harvesting ISBM Chinook in both the upper and lower reaches of the Fraser River.

In the BC Interior there are currently three Inland Commercial Fishing Enterprises operating in the BC Interior: Okanagan Nation Alliance, Upper Fraser Commercial Fishing Enterprise and Riverfresh Secwepemc Fisheries Commission (SFC). Riverfresh (SFC) operated a 14-day 8-inch set gill net fishery on Kamloops Lake targeting S. Thompson 4-1 Chinook. Riverfresh was allocated 5.06% of the available CCTAC specific to South Thompson ISBM 4-1 Chinook. This amount equated to 1,800 Chinook available for harvest in 2013. Approximately 5,179 Chinook were harvested in the upper Fraser River (above Sawmill Creek) in FSC fisheries (3,446) and demonstration fisheries (1,733).

The total Chinook harvested in the lower Fraser River, (below Sawmill Creek), was 19,538 which includes mostly FSC (10,663) and ESSR (8,745). In 2013, Chinook were to be released during the chum economic opportunity and demonstration fishery; however, 119 fish were harvested during the economic opportunity and demonstration fisheries in the lower Fraser River.

Commercial

In 2013 commercial fisheries in Tlupana Inlet (Nootka Sound) which targeted ISBM Chinook.

Area B Seine

In 2013, no seine fisheries occurred on WCVI ISBM Chinook

Area D Gill Net

In 2013, gill net fisheries occurred in Tlupana Inlet targeting Chinook returns to Conuma River hatchery. Area D gill net openings in Tlupana Inlet occurred on August 13th, 20th and 27th, 2013 for a total Chinook catch of 8,688. Maximum effort was 56 vessels per day.

In Area 23, there was no Area D Chinook fishery due to the low forecast of Robertson Creek Chinook. There was an incidental catch of Chinook during the Area D sockeye fishery in June and July with 171 Chinook retained and 14 released. The total WCVI commercial net ISBM harvest was 8,859 Chinook.

Stock Status

Fraser River and Area Chinook

Interior Fraser

Spring Chinook returns to the Fraser continue to be of concern. Preliminary indications are that returns to the Spring 52 aggregate remained at very low levels, although the aggregate as a whole likely escaped at a greater total abundance than the 2008 parent brood. Stocks of concern continue to include the Salmon River near Prince George and the Upper Chilcotin River.

Returns to the Spring 42 aggregate improved considerably over brood, however the aggregate total escapement was still very low compared to escapements in the early 2000's. All populations achieved or exceeded parental escapement levels.

Yearling (stream-type) summer Chinook (Summer 52 aggregate) returns were also poor to modest, however on average; returns were almost as abundant as the parent brood year escapements. Nechako and Clearwater returns were low and Quesnel River escapements recovered somewhat.

The South Thompson ocean-type 41 aggregate rebounded from the declines observed in 2012. All stocks except Mid Shuswap exceeded parental escapements

Lower Fraser River

Spring-run: Lower Fraser Spring Chinook returns were also mixed. Preliminary estimates of returns to Birkenhead River were low (~200), but were roughly equivalent to the parental escapements. No estimates are available for the upper Pitt River (Blue Creek).

Summer-run: Summer-run Chinook returns to Maria Slough were approximately 1050; much more than that observed in the parental brood year (~590). Returns to Big Silver Creek were estimated to be approximately 80; more than the 20 estimated for the parent brood. Information for other Lower Fraser summer populations is not available at this time.

Fall-run: Annual lower Fraser River fall-run Chinook stock group escapements are, on average, large (>100,000). The major contributor and principal focus of assessment of this stock group is Chinook returning to the Harrison River, and Harrison River transplants to the Chilliwack River. For both the Harrison and Chilliwack rivers, the field study portions of the escapement assessments are just concluding; and data entry and analyses have not started. Field estimates for Harrison indicate escapements are likely to be under 40,000 adults. No in-season estimates have been developed at Chilliwack, and the preliminary escapement estimates will not be available for either system until early January.

Howe Sound/Squamish River

No information is available at this time.

Burrard Inlet

No information is available at this time.

Boundary Bay

No information is available at this time.

Strait of Georgia Chinook

Fall Stocks

Total returns to Strait of Georgia streams north of Nanaimo, virtually all of which are enhanced, have been stable for the last seven to ten years (Puntledge and Englishman rivers) or eighteen years (Big Qualicum and Little Qualicum rivers). In general, 2013 Chinook escapements were similar to or slightly higher than 2012 throughout the Strait of Georgia.

On the mainland side of the northern Strait of Georgia, Sliammon and Lang hatcheries continue to have variable returns, however in the last five years the returns to Lang Creek have been stronger than in previous years. There are a few very small, wild populations remaining in the Theodosia and Skwakwa rivers, and those rivers entering Jervis Inlet, where assessment data are poor or not available. Historically, a large proportion of the Chinook stock aggregate originating from rivers north of Nanaimo migrate into central and northern B.C. and Alaska. Exploitation rates on this stock aggregate have gradually been reduced over the last 15 years, thus the stable trend in annual returns to rivers over this period suggests a reduction in marine survival.

In the southern Strait of Georgia, returns to the Nanaimo River have been generally stable since 1995 at slightly higher levels than those recorded back to 1975. Escapement to Nanaimo River in 2013, although not yet finalized, appear higher than recent year averages. The area of most concern is further south, where Chinook stocks returning to the Chemainus and Goldstream rivers have experienced declines in recent years. Unlike the central and northern Strait stocks, these southern populations historically rear within the Strait of Georgia. However, there appears to be an increasing proportion rearing off the west coast of Vancouver Island.

In particular, Cowichan River Chinook (a wild Chinook indicator stock) has been in decline since 1995-1996 and reached a low total adult return to river of 1260 in 2009. This population continues to be a stock of concern. Exploitation rates on Cowichan Chinook were historically high (averaging 80-90%), declined to a low of 34% on the 1995 brood year, and have steadily increased to 75% on the 2000 and 2001 brood years. Various harvest restrictions have been put into effect over the last 20 years to reduce exploitation on Strait of Georgia Chinook. Additional conservation measures were introduced in 2005 to reduce the harvest of Cowichan Chinook by the Strait of Georgia sport and WCVI troll fisheries. First Nations harvest of Cowichan

Chinook has been substantially reduced in recent years. The declining trends since 2000 in various southern Strait of Georgia rivers are attributed to high exploitation rates, a decline in marine survival, and habitat issues.

In 2013 Chinook escapement to Cowichan River appears to be an improvement over 2012; however, escapement estimates are incomplete and will be based on mark recapture estimates this year. Water levels were high during the spawning migration which was positive for Chinook migration compared to 2012 as in-river mortalities prior to spawning were likely low in 2013. High water did hamper both escapement enumeration at the Cowichan Fence and broodstock collection this year. Approximately 191 adults and 13 jacks were used for hatchery brood stock in 2013. The number of Chinook caught in local FSC fisheries has not yet been reported.

Spring/Summer stocks

Of the three early runs in the Strait of Georgia, assessment data are available for Puntledge and Nanaimo; the Cowichan summer run still exists but it is small and quantitative data are not available for that stock. Efforts to recover Puntledge Summers to viable levels have resulted in improved returns to the river since 1999. The 2006 and 2007 natural spawning escapements ranged from 200 - 500 adults (not including brood capture), which is down from the record high in 2005 of approximately 2,500 adults, but is substantially higher than escapements recorded in the previous decades. The preliminary estimate for 2013 escapement to Puntledge is approximately 450 adults (including 251 brood removals) which continues a slight decreasing in abundance over the past three years. Monitoring of Nanaimo spring and summer Chinook escapement has occurred less frequently. This year's escapement of Nanaimo summers is estimated to be between 700 and 800 Chinook adults which is above average for the last 15 years.

West Coast Vancouver Island Chinook

The status of wild WCVI origin Chinook has remained low for several years. Those populations that are not enhanced have remained well below target or declined since major El Niño events in the mid-1990s. Populations in the SWVI area (e.g. Area 24 and southward) tend to be lower status than those populations in the NWVI area.

For WCVI hatchery stocks, the terminal return is defined as total catch (First Nation, recreational and commercial) in the near approach areas of the hatchery plus escapement (brood collection plus natural spawners). In these approach areas, catch is dominated by the hatchery stock (e.g. >95%), therefore, higher exploitation rates are permitted than in times and areas dominated by naturally produced WCVI Chinook stocks.

The preliminary total terminal return of Stamp River/Robertson Creek hatchery Chinook was approximately 30,000 adults, relative to the pre-season forecast of 16,000. The preliminary escapement through Stamp Falls is 29,000 adult Chinook. The total terminal return to the Conuma River hatchery system was about 60,000 relative to a pre-season forecast of 17,000. The total terminal return to the Nitinat River hatchery system was about 40,000 relative to a pre-season forecast of 13,000. (All data are still being reviewed and will be revised.)

Johnstone Strait/Mainland Inlet Chinook

Currently only three systems are monitored consistently in Areas 12 and 13. The Nimpkish River is assessed using standardized swim surveys and stream walks by hatchery staff; an intensive mark-recapture program is carried out by Quinsam Hatchery to estimate escapement on the Campbell/Quinsam system; and a mark-recapture program has been in development over the past few years on the Phillips River, with the plan to eventually establish it as a mainland Chinook indicator. Other systems are covered using intermittent visual surveys.

Nimpkish River

Observations from swim surveys indicate a significant increase in the abundance of Chinook returning to the main spawning areas downstream of Woss Lake. Preliminary estimates of 2,500 Chinook have continued the improvements observed in 2012 (2,300 adults) relative to the past decade of returns which have averaged around 600 adults.

Campbell/Quinsam System

The Campbell/Quinsam, a long-term Chinook indicator, has been assessed by carcass mark-recapture since 1984. Preliminary results for the 2013 program have the combined system Chinook estimate at close to 4,700 adults; slightly lower than the 2012 estimate and continuing the below average trend observed over the past few years.

Quinsam Hatchery was successful in attaining their Chinook brood stock target.

Phillips River

Preliminary results from the mark-recapture program on the Phillips River estimate the Chinook escapement in the range of 2,700 adults, another strong return following the 2012 estimate of 2,063. However, the recovery of fewer marked carcasses this year due to very low river levels and the vulnerability of carcasses to bear activity, have consequently doubled estimate error as compared to 2012.
The local hatchery was again able to meet its brood target and plan to release 150,000 coded wire tagged Chinook smolts next spring to contribute to the assessment program.

Southern B.C. Coho

Objectives and overview

Coho stocks in Southern BC are managed domestically and through international Abundance Based Management provisions which are outlined in the Pacific Salmon Treaty. Harvest levels are outlined in the Treaty's Southern Coho Management Plan, which provides maximum exploitation rates dependent on abundance, and its Canada's responsibility to ensure that its domestic stocks are not harvested beyond the maximum exploitation rate as outlined in the Treaty.

In Southern BC coho management measures in commercial and recreational fisheries are implemented based on their impacts to specific stocks. Southern BC coho management is primarily based on managing Interior Fraser River, Lower Fraser, Georgia Strait, Johnstone Strait and WCVI coho stocks or management units (MU's).

In 2013 the status of Interior Fraser River coho (including Thompson River) was forecast as a Salmon Outlook category 1 – Stock of Concern. The Lower Fraser and the Georgia Basin (east and west) stocks were forecast as Salmon Outlook category 2 – Low, Johnstone Strait stocks were forecast to be low to near target (Outlook categories 2-3) and WCVI coho were forecast to be abundant (Outlook category 4).

Coho management measures varied in Southern BC in 2013 depending on the area of harvest and impact on specific coho stocks.

Management measures in place to protect Interior Fraser River coho are extensive due to it being a stock of concern. Canada manages its commercial, recreational and First Nation fisheries to limit the total mortality of Interior Fraser Coho to 3% across all domestic fisheries. The total exploitation on Interior Fraser coho is restricted to 13% (10% from the US.) of a maximum 20% ER as per the provisions of the Pacific Salmon Treaty. To reduce the exploitation on Interior Fraser coho, fisheries occurring in areas and times when these stocks are known to be prevalent are not permitted to retain wild "unmarked" coho. This includes the majority of recreational fisheries in the South Coast, and all commercial troll and net fisheries.

The extensive management measures in place for protecting IFR coho essentially provide the protection that would be needed for Lower Fraser River and Georgia Strait coho stocks. No specific management measures were in place in 2013 to protect these stocks beyond measures put in place for Interior Fraser River coho. Local opportunities were provided for wild coho retention in portions of Johnstone Strait, Queen Charlotte Strait, the Mainland Inlets, the Strait of Georgia and Juan de Fuca Strait for recreational fisheries targeting local coho stocks. Commercial fisheries in these areas remained coho non-retention.

Management measures in place for WCVI coho provided some recreational and commercial fisheries with full access harvest opportunities in WCVI areas where Interior Fraser Coho were not considered to be impacted. These were largely terminal opportunities in portions of PFMA's 23-27 where stock composition information showed that IFR coho were not found in these areas.

In WCVI areas/times where IFR coho are known to be prevalent, non-retention of unmarked coho remained in effect. Small adjustments were made in 2013 commercial troll fishery plans to allow unmarked coho retention on the WCVI once IFR were considered to have moved through the area.

Preliminary coho catch estimates are outlined in table 46. Coho catch and release information from all fisheries can be found in Table 59.

Table 46.- Preliminary coho catch estimates of the recreational, First Nations (FSC, economic opportunity and ESSR), and commercial fisheries for Southern B.C. in 2013.

	Kept	**Released**
Recreational	122,471	268,742
First Nations	88,472	12,177
Commercial	9,256	28,886
Total	**220,199**	**309,805**

Tidal Recreational

Tidal recreational fisheries can be categorized as either occurring in mixed stock areas, where multiple stocks are found concurrently in the same fishing area, and in terminal areas where local single stocks dominate the catch. These areas typically have different management measures to protect stocks of concern and where appropriate to provide harvest opportunities. The table below outlines the areas in Southern B.C. where these mixed stock fisheries occurred and the general regulations pertaining to them.

Table 47.- Southern B.C. coho fishery regulations in 2013.

Mixed stock fishing area	Daily Limit (marked or unmarked)	Size Limit	Coho Season
Area 11	2	30 cm.	June 1 – July 31
Area 11	2, 1 may be wild	30 cm.	Aug 1 – Dec 31
Area 12	2, 1 may be wild	30 cm.	June 1 – July 31
Area 12	2 marked	30 cm.	Aug 1 – Dec 31
Area 13 – Bute Inlet	2, 1 may be wild	30 cm.	Aug 1 – Sept 15
Strait of Georgia: areas 13-19, 28, portions of 29, excluding some terminal areas and times.	2 marked	30 cm.	June 1 – Dec 31
WCVI areas 121, 21, portion of 23	2 marked	30 cm.	Jun 1 – Aug 31
WCVI areas 121, 21, portion of 23	4 marked	30 cm.	Sept 1 – Dec 31
WCVI areas 123-124	2 marked	30 cm.	Jun 1 – Aug 31
WCVI areas 123-124	4 marked	30 cm.	Sept 1 – Oct 3
WCVI areas 123-124	4	30 cm.	Oct 4 – Dec 31
WCVI areas 125-127	2 marked	30 cm.	Jun 1 – Aug 31
WCVI areas 125-127	4 marked	30 cm.	Sep 1 – Sep 15
WCVI areas 125-127	4	30 cm.	Sept 16 – Dec 31
Kyuquot: 26	4, 2 may be wild	30cm	June 1 – Dec 31
WCVI inshore area 22, 23,25, 27	4	30 cm.	Jun 1 – Dec 31
WCVI inshore area 24	2	30 cm.	Jun 1 – Aug 31
WCVI inshore area 24	4, 2 may be wild	30cm	Sept 1 – Dec 31
Juan de Fuca: areas 19-20	2 marked	30 cm.	Jun 1 – Dec 31
Port San Juan: 20-2	4, 2 may be wild	30cm	Sept 4 – Dec 31

The table below outlines coho catch and release information for recreational coho fisheries in Southern B.C. The WCVI coho fisheries had a boundary in place distinguishing coho catch in the mixed-stock fishery (outside the coho boundary) and catch in the terminal area (inside the coho boundary). This coho boundary was put in place to protect Interior Fraser River wild coho which are found off WCVI during mid to late summer.

Table 48.- Recreational coho catch and effort estimates for Southern B.C. in 2013.

Area	Kept	Released
WCVI – Inshore (20W – 27)	47,685	40,974
WCVI – Offshore (21 – 127)	24,258	65,284
Strait of Georgia (14-19 May – Sep)**	10,335	34,234
Fraser River***	0	5
Juan de Fuca (19-20 Mar – Sep)	20,108	59,081
Johnstone Strait (11-13)	20,085	69,164
TOTALS	**122,471**	**268,742**

** subject to change; recreational assessments preliminary

*** Subject to change; Fraser River recreational assessments are incomplete or preliminary as of November 26 2013.

Non-Tidal Recreational

Northern Vancouver Island

Non-tidal openings for coho were available on:

- Cayeghle River (including the Colonial River) from April 1st to March 31st for one (1) per day.
- Campbell/Quinsam River from October 1st to December 31st for four (4) per day, two (2) of which could be marked over 35 cm.
- Cluxewe River from April 1st to March 31st for two (2) per day, hatchery marked only.
- Kokisilah River from April 1 to March 31 for one (1) per day, maximum size limit of 35 cm.
- Nahwitti River from April 1st to March 31st for one (1) per day.
- Quatse River from June 15th to March 31st for two (2) per day, hatchery marked only.

Anglers are restricted to the use of barbless hooks. The Campbell/Quinsam fishery was the only fishery of the above that was monitored by creel survey during 2013.

Strait of Georgia

During 2013 there were limited non-tidal openings throughout the Strait of Georgia.

- Qualicum River from October 18th to March 31st for four (4) per day, two (2) of which could be over 35 cm.
- Chemainus River from October 15th to March 31st for one (1) per day, maximum size limit of 35 cm.
- Little Qualicum River – closed due to poor coho escapement.
- Nanaimo River from November 1st to December 31st for one (1) per day, maximum size limit of 35 cm.
- Cowichan River from November 1st to December 31st for one (1) per day, minimum size limit 25 cm.

West Coast Vancouver Island

San Juan River

There was a non-tidal opening for the San Juan River (Area 20) from November 8, 2013 to December 31, 2013. The daily limit was one coho per day either marked or unmarked. This fishery was not monitored by creel survey during 2013. The San Juan River is closed above its confluence with the Fleet River. A single barbless hook restriction is in effect all year and there is also a bait restriction in effect.

Somass/ Stamp River

During 2013 there was a non-tidal opening for the Somass/Stamp Rivers (Area 23) from August 25, 2013 to December 31, 2013. The daily limit was two coho either marked or unmarked. The Somass/Stamp Rivers were not monitored by creel survey during 2013. Some portions of the Somass/Stamp Rivers had extended closures in 2013 to protect migrating Chinook salmon. These closures were lifted in late September due to stronger than expected Chinook returns. A single barbless hook restriction is in effect all year and there is a bait restriction in the Upper Somass and Stamp after September 15.

Nitinat River

During 2013 there were two planned non-tidal openings for Nitinat River coho from August 25, 2013 to September 30, 2013 and October 15, 2013 to December 31, 2013.

The daily limit for coho was 2 (marked or unmarked). The 2-week closure between October 1 and October 14 provides protection to Chinook salmon during the peak spawning period. After the closure, the daily limit for salmon was 4; anglers were allowed to retain two coho (marked or unmarked) and two chum salmon. The Nitinat River was not monitored by creel survey during 2013. The area above Parker Creek is closed to fishing.

Conuma River

During 2013 there was a non-tidal opening for the Conuma River (Area 25) from August 25, 2013 to December 31, 2013. The daily limit was four salmon per day of which two could be coho (marked or unmarked). The Conuma River was not monitored by creel survey during 2013.

Washlawlis River and Waukwass River and Other West Coast Rivers

The Washlawlis and Waukwass rivers are open year-round with a daily limit of one coho, marked or unmarked. Barbless hooks are required. No creel survey information is collected. Other rivers receiving some directed effort for coho stocks are the Wakeman, Artlish, Zeballos, Tahsis, Burman, Ash, Taylor, Pacheena, Toquart, Leiner. The quota for all west coast streams unless identified above is zero.

Fraser River and Tributaries

During 2013 the retention of 2 hatchery marked coho per day was authorized in the lower Fraser River up to Sawmill Creek. Due to the migration timing of Interior Fraser coho, the openings were scheduled to occur once the majority of this coho population was through the area. A description of the areas in the Fraser River which were open to the retention of hatchery marked coho follows with the corresponding opening dates.

- From the CPR Bridge at Mission, B.C. upstream to the Highway #1 Bridge at Hope - open from October 8th to December 31st.
- From the Highway #1 bridge at Hope to Sawmill Creek - open from October 13th until December 31st.
- There are no directed coho openings in the Fraser River or tributaries upstream of Sawmill Creek.

In addition, the following tributaries to the Fraser River allowed a daily retention of one (1) hatchery marked coho from October 1st to December 31st: Alouette River and Coquitlam River. Kanaka Creek allowed a daily retention of one (1) hatchery marked coho from November 1st to November 30th.

The following tributaries to the Fraser River allowed a daily retention of four (4) hatchery marked coho from July 1st to December 31st: Chilliwack River/Vedder, and Chehalis River.

The Harrison River allowed a daily retention of four (4) hatchery marked coho from September 1st to December 31st.

The following tributaries to the Fraser River allowed a daily retention of four (4) hatchery marked coho, with only two (2) over 35cm from January 1st to December 31st: Nicomen Slough, Norrish Creek and Stave River.

The following rivers, which enter Boundary Bay allowed the retention of one (1) hatchery marked coho per day from October 1st to December 31st: Little Campbell River, Serpentine River and Nicomekl River.

First Nations (Food Social and Ceremonial, Economic Opportunity, and Excess Salmon to Spawning Requirements)

WCVI Economic Opportunity, and FSC, Fisheries

In 2013 an agreement was reached with the Hupacasath and Tseshaht First Nations for an economic opportunity fishery targeting coho (Area 23). This agreement was not signed until early November, and coupled with Chinook conservation concerns, no EO fishery occurred. There were limited FSC gillnet and hook and line openings in September and October. To protect Chinook, these fisheries had voluntary Chinook non retention, limited numbers of designated fishers and, 6-inch mesh nets tended at all times. The total FSC catch was 2095 coho. The Maa-nulth domestic harvest was 1,705 pieces. The remainder of WCVI First Nation's reported catch 10,529 coho. The combined harvest was 14,329 coho.

ESSR Fisheries

The Tseshaht and Hupacasath First Nations were issued a joint ESSR License for coho at the Robertson Creek Hatchery facility. The total catch was 13,316 coho.

The Ditidaht First Nation was issued an ESSR License for Nitinat Lake and the Nitinat Hatchery but no harvest occurred.

The total catch WCVI for the ESSR fisheries was 13,316 coho.

Lower Fraser

Total FSC, EO and ESSR catch in 2013 for the Lower Fraser River was 47,727 coho, the majority of which was caught in ESSR fisheries (43,932).

B.C. Interior

There were no EO, Demonstration or ESSR fisheries in the B.C. Interior- (Fraser River above Sawmill Creek) targeting coho in 2013. A small directed FSC fishery was permitted in Dunn Creek where stronger than expected escapements were observed. The fishery was licensed to retain 180 coho. No catch update has been received for this fishery. The preliminary coho catch estimate in 2013 FSC fisheries above Sawmill Creek is 2.

Strait of Georgia FSC Fisheries

Data are still being compiled on various First Nations catches in the Strait of Georgia with the total preliminary catch estimated to be 230 coho caught in FSC fisheries.

Strait of Georgia ESSR Fisheries

There were two (2) ESSR licenses issued where coho salmon were harvested: 11,719 coho salmon were harvested at Big Qualicum Hatchery. Coho salmon were also harvested at the Chapman Creek CEDP Hatchery in Sechelt however the ESSR total is not available at this time.

Johnstone Strait

Data are still being compiled on various First Nations catches in the Johnstone Strait with the total preliminary catch estimated at 1017 coho caught in FSC fisheries.

Commercial

In 2013, Southern B.C. commercial fisheries were regulated so that impacts on coho, in particular Interior Fraser coho stocks, were minimized. Terminal opportunities to retain coho by-catch during directed Chinook and chum fisheries were available to Area D gill nets.

Area G troll AABM Chinook fisheries were permitted to retain selective hatchery marked coho only in Areas 123 and 124 from September 15 2013 until September 30, 2013 and all coho by-catch from October 01, 2013 to December 31, 2013. In Areas 125 -127 from September 15, 2013 until December 31, 2013, Area G troll fisheries were permitted to retain all coho by-catch.

For the 2012/2013 (October 1, 2012 to September 30, 2013) AABM Chinook fishing periods, the estimated total coho retained was 5,499 and releases during this period were estimated at 1,949 coho salmon.

WCVI Terminal Area Coho

In 2013, commercial gill-net and seine fisheries occurred in Alberni Inlet and off-shore from Nitinat Lake. Gill-net fisheries occurred in Barkley Sound, and Nootka Sound. When targeting sockeye, chum or hatchery Chinook returns harvesters may encounter and retain or release coho by-catch. In 2013 the total WCVI coho by-catch in commercial sockeye, chum and Chinook net fisheries was 1,103 pieces retained and 43 released.

Stock Status

Upper Fraser

Field programs to estimate escapements are still underway, and only very preliminary results are available for some systems. Early returns to the Interior Fraser River indicate that escapement may be similar to 2012 returns and are likely at levels above those observed in the 2010 parent brood escapements. Very preliminary data indicate returns to the entire Interior Fraser River may range between 40,000 and 60,000; however, preliminary estimates are not yet available for many systems, and near final estimates will not be available until early February, as most field studies are not yet completed.

Lower Fraser

The Lower Fraser Area (LFA) can be divided into four sub-areas: lower Fraser River, Howe Sound/Squamish River, Burrard Inlet and Boundary Bay.

(i) Lower Fraser River

Escapement studies are currently underway, and many populations have not reached peak spawning at the time of writing. Preliminary escapement estimates for the surveyed systems should be available by late February 2014.

A hatchery coho indicator stock is provided by Inch Creek hatchery. Adult escapement is assessed annually and marine survival and exploitation rates are calculated, these estimates are not yet available. Adult coho visual surveys are conducted for a number of systems within the lower Fraser River sub-area as part of multi-species assessments; however, estimates are not yet available as the field programs will not be complete until late January or early February 2014.

(ii) Howe Sound/Squamish River

Assessments for Howe Sound and Squamish River are incomplete at this time. Staff at the DFO Tenderfoot hatchery will be taking brood stock until February 2014.

(iii) Burrard Inlet

An assessment of the returns to DFO Capilano hatchery is not yet complete. The 2013 abundance and status of this stock group is not known at this time.

(iv) Boundary Bay

Community-run SEP projects contribute significantly to coho returns to this sub-area. The 2013 data will not be available until late February 2014.

Strait of Georgia

Coho salmon have been in a low productivity regime since the early 1990s. Marine survivals have been less than replacement levels in recent years. Updated estimates are not yet complete, but abundance in the Strait and in escapements this year suggests that marine survivals have exceeded predictions this year.

Hatchery stocks

The preliminary 2013 coho escapement estimates of monitored hatcheries generally showed a continuation of increasing escapements from the low returns in recent years. Escapements to northern Strait of Georgia stocks (Puntledge, Qualicum, Lang) are in general better than recent years. Escapements to Qualicum River were higher than last year and again high enough to allow non-tidal fisheries to proceed in 2013, while Puntledge escapements appear lower in 2013 than 2012. Escapements to southern Strait of Georgia stocks (Nanaimo, Goldstream) were also mixed. Limited assessment in Nanaimo River suggests a strong improvement in escapement over 2012, while Goldstream escapement is very similar to last year. In general, coho returns in 2013 appear to follow the recent trend for improvements over brood year escapements.

Wild stocks

In the past, both Black Creek and Myrtle Creek have served as indicators of Strait of Georgia coho. In 2013, Myrtle Creek adult monitoring was not conducted.

Escapement to date in Black Creek is very strong and well above average. The majority of adult coho have moved past the fence, but low levels of fish will continue to migrate into early December. The preliminary escapement (fence count) of 10,284 adults is a significant increase from last year (6,865) and continues a building trend evident over the past several years.

Black Creek

The 2013 Black Creek Adult project is ongoing; escapement to date has been well above average with moderate to high water levels since the first weekend in November. The majority of adult coho have moved past the fence, however the migration continues and may remain at moderate to low levels into early December. In 2013, run timing for Black Creek coho has altered slightly (later peak) due to exceptionally low water levels, throughout October. The dead pitch program has now commenced. The preliminary escapement (fence count) of 8,538 adults is higher than 2002-2012 estimates, the second highest escapement in 15 years, and appears to be similar to that of 2001 (12,100 adults). The 2013 escapement may be a continuation of the building trend of the past several years (2008-2012), with the 2011 escapement being an anomaly. This adult return indicates favourable marine conditions in 2012 for Strait of Georgia coho salmon.

West Coast Vancouver Island

There are two indicator stocks in WCVI: Robertson Creek Hatchery and Carnation Creek. Both are located in DFO Statistical Area 23. In 2013, preliminary escapement to Robertson Creek Hatchery is estimated at about 51,000; higher than expected and higher than recent year averages. Escapement to the Carnation Creek indicator system is under review. Preliminary estimates of escapement to other WCVI systems suggest levels are also higher than recent year averages, but there is some variability in this observation.

Johnstone Strait and Mainland Inlets

The Keogh River plays an important role as the wild coho indicator stock for the upper Johnstone Strait area. Smolt production in 2012 was around 108,000, the highest production since the inception of the program in 1977 and well above the long term average of 63,000. Preliminary indications from the resulting adult escapement in 2013 are that marine survival continues to improve for this population. Smolt production from the Keogh in 2013 of approximately 111,000, which is now the highest on record, may result in a strong return in 2014 if marine conditions stay the same or improve.

The marine survival indicator for Area 13 is the Quinsam River Hatchery. Coho moved into the Quinsam early with the increased flows of late September, but migration slowed with lower river levels in October. Early November rainfall encouraged the migration to continue and early estimates by the hatchery have the 2013 Quinsam escapement above average, at 13,000 adults and 2,640 jacks. This is the largest return since 2009, equivalent in size in both adult and jack components.

Preliminary extensive escapement reports for coho in many systems are also indicating abundances higher than the past few years, but well below average escapements for a few scattered systems. At this time, it is still too early to provide an indication of stock status.

Johnstone Strait Chum

Objectives and overview

The Johnstone Strait chum fisheries primarily target chum that spawn in Johnstone Strait, Strait of Georgia, and Fraser River areas. In order to improve the management of Johnstone Strait chum fisheries and to ensure sufficient escapements, a 20% fixed exploitation rate strategy was implemented in 2002 in Johnstone Strait. This year constituted the 12th year of the fixed exploitation rate harvest strategy. Of the 20% exploitation rate, 15% is allocated to the commercial sector and the remaining 5% is set aside for test fisheries, First Nations, and recreational harvesters and to provide a buffer to commercial exploitation. Since the implementation of this management strategy, annual fisheries have been planned well in advance of the chum return.

The pre-season commercial fishing plan was developed based on expectation of effort, exploitation levels by gear group, and historical run timing (peak estimated as October 9th). The fishing plan was developed to achieve the commercial allocation sharing guidelines of 77% for seine, 17% for gill net and 6% for troll. Adjustments to the fishing plan are made in-season, if warranted.

As outlined in Chapter 6 of the Pacific Salmon Treaty, commercial chum fisheries in Johnstone Strait are suspended when an abundance estimate of less than 1 million chum salmon migrating through Johnstone Strait is identified. This did not occur in 2013 and all fisheries proceeded as scheduled.

In 2013, the Area B (seine) and Area D (gill net) were competitive derby fisheries.

The Area H (troll) fleet was managed using an effort based individual transferable effort (ITE) demonstration fishery for the 6th year (2008 - 2013). A total of 300 boat-days (180 in period 1 and 120 in period 2) were modeled to correspond to the troll share of the harvest rate described above, and two time periods were defined to spread the catch over a 38-day period. Each Area H license holder was assigned three boat-days in period 1 and two boat-days in period 2. Boat-days from each period could be transferred to other license holders within each period but not between periods. The transfer of boat days between fishing periods was not permitted in 2012 and 2013 (had been permitted previously). Subareas 13-6 and 13-7 (Deepwater Bay area) were closed to troll fishing on weekends and holidays.

Chum catch and release information from all fisheries can be found in Table 60.

First Nations

First Nations fisheries for chum were not restricted. The preliminary estimated catch by First Nations in the Johnstone Strait area is 10,020 chum salmon.

Marine Recreational

The marine recreational daily limits for chum are four (4) per day and a possession limit of eight (8). Peak participation in the recreational chum fishery occurred on the Thanksgiving weekend on October 11 to 13 and during the annual Brown's Bay chum derby which took place on the weekend of October 18 to 20. The total catch during the derby was reported at 661 chum. The total recreational catch in Johnstone Strait, Areas 11, 12 and 13, was estimated to be approximately 4500 chum this season. Since there was no creel survey in the month of October in Areas 11, 12 and 13, this estimate is based on anecdotal information from local fishermen and guides. The majority of the recreational chum salmon fishing effort occurs in Area 13.

Non-Tidal Recreational

There is anecdotal information of limited recreational chum fisheries in non-tidal waters in the Johnstone Strait area. Overall effort and catch is not estimated but expected to be minimal.

Commercial

The commercial chum fisheries in Johnstone Strait were planned for September 27 to November 3, 2013. The total commercial chum catch from Johnstone Strait during chum directed fisheries is estimated at 589,110 pieces. An additional 7,893 pieces of chum were harvested during Area B seine pink directed fisheries in Johnstone Strait.

Area and gear restrictions, including the mandatory use of revival tanks, were in place for commercial chum fisheries. Catch monitoring included requirements for catch reporting and mandatory logbooks.

A description of each fishery is provided below:

Area B Seine

In 2013, there were two commercial seine openings for chum salmon in portions of Areas 12 and 13. The first opening took place on October 2 for twelve hours and was extended for an additional four hours on October 3. The second opening took place October 21 for ten hours. The first opening was originally scheduled for only October 2 but was extended by 4 hours because of lower than expected effort.

The chum catches for the first and second openings were estimated at 249,506 pieces and 174,651 pieces respectively; for a total catch of 424,157 chum.

Area D Gill net

In 2013, there were three 41-hour commercial gill net openings for chum salmon in portions of Areas 12 and 13. The first opening took place from 16:00 hours on October 7 to 09:00 hours on October 9, the second opening from 16:00 hours on October 15 to 09:00 hours on October 17 and the third opening from 16:00 hours on October 25 to 09:00 hours on October 27.

The estimated chum catches for the three Area D gill net fisheries were 45,768 pieces, 45,809 pieces and 31,002 pieces respectively; for a total estimated catch of 122,579 chum.

Area H Troll

In 2013, the Area H troll ITE demonstration fishery was divided into two fishing periods: September 27 to October 13 (period 1) and October 15 to November 3 (period 2); with closures during the Area B seine fisheries on October 2 and 21. Each license was allocated three boat days during the first fishing period and two boat days during the second fishing period. Boat days could be transferred between vessels within each fishing period, but could not be transferred between fishing periods.

The catch for the first fishing period was 22,403 chum and 19,971 chum for the second fishing period, with a total catch of 42,374 chum. Total effort for the Johnstone Strait fishery was 204 boat days; 121 in period 1 and 83 in period 2.

Table 49.- Johnstone Strait Commercial Catch and by Date and Gear Type

Gear Type	Fishery Dates	Effort[a]	Catch
B - Seine	Oct 2 and 3	82	249,506
	Oct 21	88	174,651
D - Gill net	Oct 7-Oct 9	140	45,768
	Oct 15-Oct 17	155	45,809
	Oct 25-Oct 27	110	31,002
H - Troll	Sep 27-Oct 13	121	22,403
	Oct 15-Nov 3	83	19,971

[a] Number of vessels for seine and gill net, and boat days for troll.

Table 50.- Johnstone Strait Fisheries Catch and Allocation

Gear Type	Total Catch	% of catch	J.S. Allocation Plan
Area B	424,157	72.0%	77%
Area D	122,579	20.8%	17%
Area H	42,374	7.2%	6%
Total Catch:	**589,110**		

Stock Status

Mixed Stocks

The main components of the Inside South Coast (ISC) chum return was expected to be both Fraser and non-Fraser stocks. These stocks are typically dominated by four year old fish from a below average 2009 brood return which out-migrated to the ocean in 2010. It was quite apparent that other salmon species that also out-migrated in 2010 encountered lower productivity and reduced survivals (pinks and coho returns in 2011). The pre-season expectation for ISC chum suggested low to near target returns to the area.

The Johnstone Strait test-fishery provided timing and abundance information for the 2013 return, which is important in assessing the performance of the 20% fixed exploitation rate strategy. It also provided an index of abundance, used to determine the likelihood of the number of returning chum being over the 1.0 million critical level (requirement for commercial openings). Catch per unit effort in the test fishery was relatively strong and it was determined that the ISC index of abundance was likely above the 1.0 million critical level. Age composition derived from the test-fishery and commercial samples was dominated by 4 year olds throughout the season.

Preliminary information on escapements and catches to date suggest returns were average to below average in most Inner South Coast chum populations. In-season information is still being collected and analyzed regarding total stock size.

Terminal returns

Most summer run chum returns in Area 12 demonstrated similar or improved returns relative to parental broods in 2008 and 2009.

Preliminary information on the status of fall run chum in the Johnstone Strait area indicates returns are below average for a variety of systems within the area. Initial observations on the Nimpkish River indicate very low abundance of returning chum.

Fraser River Chum

Objectives and overview

Chum salmon return to the Fraser River from September through December, with the typical peak of migration through the lower river occurring from mid to late-October. Spawning locations are predominately located in the Fraser Valley downstream of Hope, B.C., with major spawning aggregations occurring within the Harrison River (including Weaver Creek and Chehalis River), the Stave River, and the Chilliwack River. No spawning locations have been identified upstream of Hells Gate.

The escapement objective for Fraser River chum is 800,000. Since 2001, this objective has been achieved in all but two years. Escapements in 2009 and 2010 did not meet the escapement goal, with approximately 460,000 and 550,000 returning to spawn in those years, respectively.

General Overview of Fisheries

Fraser River chum are typically harvested in Johnstone Strait, the Strait of Georgia, Juan de Fuca Strait, in U.S. waters of 7 and 7A, as well as in the Fraser River.

Within the Fraser River, chum directed fisheries include: First Nations FSC fisheries; recreational fisheries; and commercial fisheries. In recent years, significant conservation measures have been implemented in-river during the Fraser River chum migration period in order to protect co-migrating stocks of concern (Interior Fraser coho and Interior Fraser steelhead). Depending on the fishery, these measures have included both time and area closures, as well as gear restrictions. These conservation measures have restricted Fraser River commercial chum fishing opportunities in recent years.

Catch data from all chum fisheries can be found in Table 60.

First Nations

FSC gill net fisheries commenced October 5th (below Mission) and October 11th (above Mission) following closures to protect co-migrating Interior Fraser coho. The estimated catch from all fisheries (includes FSC, Economic Opportunity, Demonstration, Treaty, and ESSR) below Sawmill Creek was 170,942. There were 39,969 Chum harvested in FSC fisheries, 87,597 harvested in Economic Opportunity fisheries, 18,870 harvested in the Demonstration fishery, 5,934 harvested in the Tsawwassen Treaty fisheries, and as of November 20 there have been 28,103 chum reported harvested through ESSR fisheries. ESSR harvests are ongoing for 2013.

Recreational

In 2013, some of the major Fraser River watershed recreational salmon fisheries impacting chum Salmon were assessed, including significant salmon fisheries occurring in the lower Fraser River mainstem and the Chilliwack River (a tributary to the Fraser River in the lower Fraser Valley).

The lower Fraser River mainstem recreational fishery was open to the retention of chum salmon from July 27th to August 15th and August 30th to December 31st (with a daily limit of two (2)). In 2013, this mainstem fishery was assessed from July 27th to August 15th and August 31st to September 30th; in-season estimates are still being compiled. The Chilliwack River recreational fishery was open to the retention of chum salmon from July 1st to December 31st. The Chilliwack River fishery was assessed from September 1st to November 15th in 2013. In-season estimates are still being compiled.

The Harrison River, Stave River and Nicomen Slough recreational fisheries were open to the retention of chum salmon year round (daily limit of two (2)). In 2013, no assessment was conducted on the Harrison River or Stave River fisheries; however, the Nicomen Slough/Norrish Creek fishery was assessed from October 12th to November 30th. In-season estimates are still being compiled.

Commercial

The Fraser River chum test fishery at Albion operated every other day from September 1st until October 19th, alternating days with Albion Chinook test fishery. From October 21st until November 9th, the chum net fished every day, and then fished every other day from November 11th until November 23rd. In 2013, the total number of chum harvested during the Albion chum test fishery was 10,902 fish. The Albion Chinook test fishery caught an additional 3,308 chum.

Commercial fisheries in the lower Fraser River (below Mission) remained closed during the Interior Fraser coho window closure and further closures were in place until late October to meet requirements of the Interior Fraser steelhead objective. One Area E Gill Net commercial opening took place in the Fraser River (Area 29) during the 2013 chum season, consisting of a 24-hour duration fishery on October 24-25, 2013 for a total estimated harvest of 93,189 chum salmon retained and 61 released.

Stock Status

The number of adult chum returning to the Fraser River each fall is estimated in-season with a Bayesian model based on Albion test fishing catch. Catch of chum was strong and consistent at Albion all season, with daily catches exceeding 300 chum occurring throughout the last two weeks of October.

For fishery planning purposes, and given early indications of a strong chum return to the Fraser River, Fisheries and Oceans Canada provided a provisional in-season update on October 15th of 1.489 million chum. Confidence intervals and estimates of peak run timing were not provided at this time, as the 50% migration date for the run had not yet been confirmed.

A subsequent estimate of Fraser River chum abundance was provided on October 21st. The estimated return on that date was 1.634 million (80% probability interval of 0.915 to 2.554 million), with a 50% migration date through the lower river of October 18. This peak date is consistent with that observed in recent years (average peak date from 1997-2012 is October 18).

Additional in-season estimates were not provided, as subsequent test fishing information was consistent with a run size of 1.634 million.

Fraser River chum salmon return to numerous spawning locations in the lower Fraser River and its tributaries. Spawning escapement for Fraser River chum salmon is currently assessed annually for four of the six largest chum producing systems, as well as for a number of smaller tributaries. The largest observed escapement of Fraser chum (greater than 3 million fish), was seen in 1998. Since that time, spawning escapements for annually assessed Fraser River chum systems trended downwards to 2009 and 2010 when chum salmon escapements estimates fell below the established 800,000 escapement goal. However, escapements improved in 2011 and 2012 and exceeded the escapement goal, with estimated spawners of 1.1 and 1.4 million in those years, respectively.

Current year escapement assessment programs are still ongoing, and preliminary estimates of escapement are not available. However, observations of spawners to this date seem consistent with 2013 Albion-based in-season assessments.

Strait of Georgia Chum

Objectives and overview

Strait of Georgia chum fisheries consist of terminal opportunities for chum returning to their natal spawning streams. Many of the potential terminal fishing areas have enhancement facilities and/or spawning channels associated with the rivers. Terminal fishery strategies consist of monitoring and assessing stocks (escapement and returning abundance) with the objective of ensuring adequate escapement and providing harvest opportunities where possible. Stock assessments may include test fisheries, escapement enumeration, and over flights. In some areas where stocks receive considerable enhancement or where stocks have above average productivity, limited fishing may occur prior to major escapement occurring.

Commercial

Area 14

Chum returning to this area have been enhanced since the late 1960s and terminal fisheries have occurred in October and November since the 1970s. The returning Area 14 chum abundance is forecasted pre-season using brood escapement, average survival and age composition. In-season run strength is assessed from any early catches, visual observations at river estuaries and by escapement counts to the three major river systems.

This fishery is directed at the enhanced stocks of three systems: Puntledge, Qualicum and Little Qualicum rivers. The Qualicum River is often referred to as the 'Big' Qualicum River, to better distinguish it from the Little Qualicum River. The escapement goals for the three river systems are 60,000 for Puntledge River, 130,000 for Little Qualicum River, and 100,000 for Qualicum River, adding up to an overall escapement goal of 290,000 chum not including enhancement facility requirements (about 10,000 chum bringing the total escapement goal to 300,000).

The Area 14 fishery has a specific harvest strategy, implemented since 1981. The strategy consists of limited early harvest prior to escapement occurring. The allowable early chum harvest is calculated from 65% of the predicted surplus (terminal return run size minus escapement of 300,000 and buffer of 100,000). The buffer safeguards against errors in forecast stock abundance. The surplus within the 100,000 buffer and remaining 35% of the surplus may be harvested provided that escapement targets have been achieved. If there is no significant surplus identified in the pre-season forecast potential fishing opportunities are determined in-season based on pre-set in-river escapement targets and run timing information.

Area 16

This fishery targets wild chum stocks returning to river systems in the Jervis Inlet area. The main systems are Tzoonie, Deserted and Skwawka rivers. The overall escapement goal for Jervis Inlet streams is 110,000. These terminal fisheries occur when the individual or combined escapement goals have been assured. Fishing opportunities do not occur on a regular basis. There were no fisheries in Area 16 in 2013.

Area 17

This fishery is a terminal fishery targeting Nanaimo River stocks. The Nanaimo River chum stocks are supplemented by the Nanaimo River hatchery (supplementation is on a sliding scale), where increased enhancement occurs during poor escapement years. Escapements fluctuate annually and fishery openings are planned in-season based on escapement estimates. The overall escapement goal for the Nanaimo River is 60,000. An assessment fishery was triggered when the escapement reached approximately 75% of the escapement target. In 2013 there were two days of fishing for Area E gill nets on November 3 and 4 for 12 hours each day. Total catch for the two days was 9,773 chum.

Area 18

This fishery is directed primarily at Cowichan River stocks, however, Goldstream chum are also harvested. Fishery openings in mid to late November are limited to Satellite Channel in order to minimize impacts on Goldstream stocks. Chemainus River stocks could also be impacted if the fisheries are earlier in November, but likely to a lesser extent.

Fishery openings are planned in-season based on escapement estimates from a DIDSON counter and information from a test fishery. Management is also guided by advice from the Cowichan Fisheries Roundtable (the Roundtable) and the Mid Vancouver Island (MVI) Chum Subcommittee and an in-season Chum Escapement Forecast Tool based on the Didson count and date. The overall escapement goal for the Cowichan River is currently 160,000 chum counted by the DIDSON counter. There were no gill net or seine fisheries in Area 18 in 2013.

The Area 18/19 seine test fishery in conjunction with the DIDSON fish counter provide timely in-season stock information regarding chum returns to the Cowichan system. A weekly conference call was held with the Cowichan Fisheries Roundtable Harvest Committee to discuss stock status and potential fishing opportunities. As of November 19 the Cowichan chum escapement was 123,900.

Area 19

This fishery is directed primarily at Goldstream River stocks although some Cowichan River chum salmon are also harvested. Fishery openings set for mid to late November are limited to the portion of Saanich Inlet (Sub area 19-8) which is outside or to the north of Squally Reach. This area restriction is implemented to minimize impact on Goldstream Chinook and coho stocks.

Fisheries are planned in-season based on escapement estimates and a test fishery. Area 19 falls under the same management regime as Area 18. The overall escapement goal for the Goldstream River is 15,000. There were no fisheries in Area 19 in 2013.

Chum catch and release information from all fisheries can be found in Table 60.

First Nations

Food, Social and Ceremonial Fisheries

The preliminary estimated FSC catch by First Nations in the Strait of Georgia is estimated to be approximately 4,790 chum; additional catch data is currently being compiled.

ESSR Fisheries

The K'omoks First Nation was issued an ESSR License for chum and incidental catch of coho and Chinook at the Puntledge River Hatchery. The total K'omoks First Nation ESSR license harvest was 16,038 chums.
The Qualicum First Nation was issued an ESSR License for chum and incidental catch of coho and Chinook at the Big Qualicum River hatchery. There was no ESSR fishery at the Big Qualicum hatchery in 2013 as the river did not achieve its escapement target.
The Sliammon First Nation had an ESSR harvest at the CEDP hatchery on Sliammon Creek. The First Nation harvested 2,296 chum salmon.

The total ESSR harvest for Areas 14 – 19 was 18,334 chum salmon

Recreational

The majority of recreational effort directed at chum salmon occurs in the lower portions of the Discovery Passage area, particularly in the waters around Campbell River. These catch estimates are reported in the Johnstone Strait Chum, Section 9. Some marine chum fisheries take place in the approach waters of the Puntledge and Qualicum Rivers but the catch and effort are both very low and not currently surveyed.

Tidal recreational fisheries are subject to the normal salmon daily and possession limits (daily limit of four (4) per day and possession of eight (8)) and are open throughout the area. In all areas anglers were restricted to the use of barbless hooks and there was a minimum size limit of 30 cm. Occasionally recreational in river fisheries occur where surpluses or target escapements will be met. These fisheries occur almost exclusively where enhancement facilities are present. Details on chum opportunities are reported in the Tidal Waters Sport Fishing Guide and also in the Freshwater Supplement. In-season changes and opportunities are also posted online at the Pacific Region recreational fisheries website: http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.htm.

Commercial

Strait of Georgia commercial chum fisheries for seine, and gill net were conducted between November 3 and November 20. The total commercial chum catch from the Strait of Georgia is estimated at 40,652 pieces (see Table 51 below). A description of each fishery is provided in the following table.

In 2013 seine and gill net fisheries targeting Puntledge River chums took place in Area 14. There was an Area D gill net opening in portions of Area 14 from November 03 to November 20 and an Area B seine opening from November 06 to November 14. The preliminary gill net catch estimate is 30,872. The effort and catch in the seine fishery was low. Three vessels participated and reported a total catch of 7.

Chum catch and release information from all fisheries can be found in Table 60.

Table 51.- Strait of Georgia Commercial Chum Catch by Date and Gear Type

Fishery Date	Gear type	Area	Effort (boat days)	Catch
Nov 3–20	GN	14	474	30,872
Nov 6 – 14	SN	14	4	7
Nov 3 – 4	GN	17	78	9,773

Stock Status

Historically, chum returns have been highly variable relative to brood year escapements. For 2013, generally at or below average chum returns to the Strait of Georgia were forecast. The forecast was based on below average brood year escapements (in either 2009 or 2010) and anticipated average survival.

Conditions for returning chum migration and spawning were adequate although water flows tapered off near the end of the run. Spawning escapements continue to be monitored and are currently being compiled. To date, returns have been generally close to forecasts (Table 52).

Two marine test-fisheries were conducted, one off the Cowichan River and the other adjacent to Goldstream River. The Cowichan and Goldstream seine test-fishery commenced on October 29th and will continue until December 4th for a total of twelve (12) fishing days. Test catches have totaled 16,663 chum for both areas to date with the largest catches from Mill Bay, Tozier Rock and McCurdy Point. Each test fishing day generally consists of six sets. This year, 8,270 chum were retained to cover the costs of the test fishery and the remainder were released.

Table 52.- Strait of Georgia Chum Preliminary Spawning Escapements

Stock	Target Escapement Target	2013 forecast Expected range	Preliminary 2013 Escapement
Jervis Inlet	110K	21K – 37K	56K
Mid-Island	300K	198K – 297K	236K
Puntledge	*60K*		*62K*
Little Qualicum	*130k*		*97K*
Big Qualicum	*100K*		*77K*
Nanaimo	63.5K	47K – 70K	55K
Cowichan	160K	124K – 186K	130K
Goldstream	15K	16K – 24K	29K

West Coast Vancouver Island Chum

Objectives and overview

Commercial chum salmon fisheries normally occur on the WCVI from late September to early November in years of chum abundance. The majority of chum fishing on WCVI takes place adjacent to Nitinat Lake (Area 21), in Nootka Sound and Tlupana and Esperanza Inlets (Area 25). During the past few years there have been limited-fleet gill net fisheries in Barkley Sound (Area 23), Clayoquot Sound (Area 24), Nootka Sound and Esperanza Inlet (Area 25). Commercial fisheries target wild chum stocks returning to local streams and enhanced chum stocks from Nitinat and Conuma hatcheries.

With the exception of Nitinat and Tlupana Inlet where hatchery stocks dominate adult returns, WCVI chum fisheries are managed to between 10% and 20% harvest rate. Fishery managers consider run timing, fishing effort and fleet distribution when implementing in-season management measures. In-season management measures, such as limiting fishing effort to one or two days per week, are implemented to ensure that target harvest rate objectives are not exceeded. As well, in 2012, revised fishery lower and target reference points (LRPs and TRPs) were developed based on the Sustainable Escapement Goal (SEG) method. The SEG approach uses the long-term escapement series to set fishery reference points. Conservative "SEGs" are defined as the 25% and 75% of a long-term escapement time series. The lower SEG is estimated to represent approximately 0.8 SMSY. Although the WCVI chum forecast is highly uncertain, the forecast is used to inform pre-season fishery planning. Where the forecast is below the LRP for an area, fisheries are curtailed. Where the forecast is below the TRP, fisheries are more limited.

Table 53.- Southwest Vancouver Island Chum Conservation Unit Preseason Forecast for 2013 in relation to fishery reference points.

Location	PFMA	2013 Forecast	Limit Reference Point (LRP) *	Target Reference Point (TRP) **
Barkley	23	54,000	46,000	149,000
Clayoquot	24	53,000	19,000	70,000
Nootka	25	26,000	34,000	149,000
Esperanza	25	15,000	16,000	46,000
Kyuquot	26	87,000	19,000	74,000
SW VI CU	**all**	**563,000**	**151,000**	**676,000**

* Interim LRP's are equivalent to the 25% SEG (Sustainable Escapement Goal), or 25% of the long term average escapeme
LRP's represent the escapement level below which fisheries should not be conducted.

** Interim TRP's are equivalent to the 75% SEG, or 75% of the long term average escapement.
TRP's represent the target escapement for each area.

Area D and Area E commercial gill-net fleets and the Area B commercial seine fleet target WCVI chum. Seine opportunities generally occur once surplus to escapement and hatchery brood requirements have been identified for Nitinat Lake, Nitinat River and Nitinat hatchery. In 2013 a test fishing program was not conducted for Nitinat chum. In lieu of a test fishery, the fishery was managed through a fixed-harvest rate strategy to limit the harvest rate to approximately 25%. The allowable effort of the commercial fleets was determined from an analysis of the average exploitation rate per unit effort in Nitinat chum fisheries over the last decade.

For 2013, the pre-season forecast was for escapement to all areas to be below the provisional target limit reference point for fisheries, with the exception of Barkley and Kyuquot Sound. All other areas, with the exception of Nootka, were above the lower reference point were limited fisheries could occur.

There have been limited-fleet gill net fisheries in Esperanza Inlet (Area 25) and Barkley Sound (Area 23) since 2004 and a limited-fleet assessment fishery was initiated and has continued in Clayoquot Sound (Area 24) since 2007. In 2013, only Area 23 was approved for commercial openings due to the low pre-season forecast chum abundance for most WCVI areas.

Escapement to Nootka Sound streams has been at or below both the target escapement and the limit reference point since 2006 and there is concern for the sustainability of these stocks. In addition, Conuma Hatchery has been unable to reach their broodstock target in recent years. As the 2013 forecast return was below both the target escapement and the limit reference point, commercial fisheries were not conducted for Outer Nootka in 2013.

Esperanza stocks have been at or below the LRP for four of the last five years, and the 2013 forecast was for the return to be below both the target escapement and the limit reference point. Limited effort commercial fisheries were not conducted in 2013.

First Nations Food, Social and Ceremonial (FSC) and Treaty Domestic Allocation fisheries for chum salmon occur primarily in terminal areas. Excess Salmon to Spawning Requirements (ESSR) fisheries were conducted by the Ditidaht First Nation at Nitinat Lake targeting Nitinat hatchery surplus production. Economic Opportunity fisheries were carried out by the Hupacasath and Tseshaht First Nations in upper Alberni Inlet and in the lower Somass River.

In-river recreational fisheries generally have low effort, but recently effort has increased in some terminal area rivers (i.e. Nitinat River). Directed effort and catch of chum in recreational marine fisheries off the WCVI remains low.

Chum catch and release information from all fisheries can be found in Table 60.

First Nations

The Ditidaht First Nation conducts annual chum FSC fisheries and operates ESSR fisheries in Nitinat Lake and rack harvests at Nitinat hatchery in years of higher chum abundance.

Tseshaht and Hupacasath First Nations conducted chum catch monitoring and chum adult enumeration surveys in Alberni Inlet local river systems in 2013. Observations were reported weekly to DFO Stock Assessment and Resource Management staff.

WCVI FSC and Economic Opportunity Fisheries

In 2013, an agreement was reached with the Hupacasath and Tseshaht First Nations for an economic opportunity fishery targeting chum (Area 23). The agreement was signed in early November. The timing when the agreement was completed combined with the low chum returns in local streams, resulted in no Economic Fishery occurring. There was a limited gillnet and hook line fishery for FSC with a target of 1000 pcs. Total catch in the fishery was 957 pcs. The remaining WCVI NTC First Nations including Maa-nulth domestic harvest was reported as 1,052 chum. The total combined catch for the WCVI First Nations was 2,009 chum.

ESSR Fisheries

The Ditidaht First Nation was issued an ESSR License for chum at Nitinat Lake and Nitinat hatchery. The catch was 1061 in the lake and 24,089 from brood capture. The total catch for the ESSR fisheries was 25,150 pieces.

Commercial

Nitinat

In previous years the Nitinat commercial chum fishery was the largest on the West Coast of Vancouver Island; this fishery targets returning Nitinat River hatchery stocks. The fishing period is generally October 1st to November 15th. In 2013 no test fishing program was conducted and a fixed effort approach was developed to target a harvest rate of approximately 25%. The pre-season forecast was 328,000 which was above the lower reference point and resulted in a small an anticipated surplus. The preliminary return in 2013 is estimated at 67,000 chum which was much lower than expected and only limited gillnet fishing occurred.

Area B Seine

In 2013 there was no Area B seine fishery planned due to low escapement levels and poor gillnet catches.

Area E Gillnet

In 2013 the Area E gillnet fishery was open for a total of 4 days on Oct 3-4 and Oct 10-11. The total catch was 15,730 chum and the peak effort was 48 vessels.

The total commercial catch for Nitinat Chum was 15,730.

Limited Entry Chum WCVI

Barkley (Area 23), Clayoquot (Area 24) and Nootka/Esperanza (Area 25)

Commercial chum fisheries in Areas 23, 24 and 25 are typically managed using weekly in-season effort estimates. The harvest-rate approach is designed to achieve a harvest rate of 20% or less on all stocks in Nootka Sound and 10% to 15% in Esperanza Inlet, Clayoquot Sound and Barkley Sound chum stocks. In Tlupana Inlet, where hatchery stocks are predominant, exploitation rates may be higher in years of higher abundance.

The main objective of the gill net fishery strategy is to provide advance indication of chum salmon abundance that could initiate larger fleet fisheries in Nootka Sound and Tlupana Inlet.

Barkley Sound (Area 23)

Commercial

Effort was to be limited to four vessels Area D vessels fishing two days per week from 8:00 hrs. to 18:30 hrs. starting October 2 to avoid potential impacts on returning Chinook stocks (i.e. Robertson, Nahmint, Sarita, etc.). The fishery typically tails out by the first week of November; however, if in-season information suggests the return will be below the LRP, the fishery will be curtailed sooner.

In 2013 there were three openings in the first 3 weeks of October and the catch was poor. The vessels did not fish the second day of week 3 and there was no further interest in any future fisheries.

Fishery opened 3 weeks in a row beginning Oct 1-2, 8-9, 15-16

Oct 1-2 Catch - 730
Oct 8-9 Catch - 675
Oct 15-16 Catch - 13
Total 1418 pcs

First Nations

Tseshaht and Hupacasath First Nations FSC fishing by gillnet in Alberni Inlet for chum from September 23 to October 16 was limited to small daily openings due to Chinook concerns.
Total Catch - 945 chum

Clayoquot Sound

The chum forecast for Clayoquot Sound was 53,000 pieces. This identifies a TAC of 5,300 pcs for harvest (10% exploitation rate). The First Nations FSC chum allocation in Area 24 was 12,100 pieces. This left no fish available for commercial harvest.

Nootka

Limited effort assessment fisheries were not recommended in 2013 as the forecast is below both the target escapement and the limit reference point. Conuma Hatchery was unable to achieve brood stock targets in recent years due to low escapements. In addition, all other Nootka Sound systems regularly surveyed for escapement trends (Canton, Suewoa, Tlupana, Burman) have had escapements at or below the LRP for the last 6 years.

Esperanza

Limited effort assessment fisheries was not recommended in 2013 as the forecast was below both the target escapement and the limit reference point.

Kyuquot

Kyuquot was above the target reference point for 2013 at a forecast of 87,000 pieces. This resulted in a TAC of 8,700 pieces for harvest (10% exploitation rate). The Maa-nulth First Nations have indicated that they will harvest their FSC chum from Area 26 for a target of 10,000 pcs. As a result, there was no fish available for commercial harvest.

Stock Status

Abundance of chum populations in the WCVI conservation unit (CU) was average to above average from 2001 to 2006. Low returns from 2007 to 2010 reflect a decline in productivity most likely related to lower than average marine survival rates, particularly during the 2005 to 2007 sea entry years. Chum returns in 2011 showed some improvement, likely due to the favorable 2008 sea entry year; returns were about average in SWVI but were still well below average in NWVI. However, overall returns in 2012 and 2013 were generally below long-term averages. Some improvement might be expected in 2014 with contribution from the 2011 brood year.

Table 54.- Catches in Canadian Treaty Limit Fisheries, 1996 to 2013 (Preliminary)

Fisheries/Stocks	*Species*	*2013*	*2012*	*2011*	*2010*	*2009*	*2008*	*2007*	*2006*	*2005*	*2004*	*2003*	*2002*	*2001*	*2000*	*1999*	*1998*	*1997*	*1996*
Stikine River (all gears)	Sockeye Coho Chinook-lg Chinook-jk	36,146 4,835 3,415 1,594	30,352 5,748 4,573 1,213	55,623 4,703 2,307 1,165	50,543 4,952 1,766 1,001	48,049 5,061 2,330 714	33,614 2,398 7,860 1,067	59,237 47 10,576 1,735	101,209 72 15,776 2,078	85,890 276 18,997 2,177	84,866 275 3,857 2,574	58,784 190 1,396 1,052	17,294 82 1,362 578	25,600 233 1,480 103	27,468 301 3,086 628	38,055 181 2,916 1,264	43,803 726 2,164 423	65,559 401 4,483 286	74,281 1,404 2,471 421
Taku River (commercial gill net)	Sockeye Coho Chinook-lg Chinook-jk	21,163 10,374 738 N/A	30,209 8,689 1,909 478	24,012 6,102 2,333 314	20,211 10,349 4,656 697	11,057 5,649 7,031 1,183	19,445 4,866 1,184 330	16,564 5,399 862 337	21,093 9,180 7,312 198	21,932 6,860 7,534 821	19,860 5,954 2,074 334	32,730 3,168 1,894 547	31,053 3,082 1,561 291	47,660 2,568 1,458 118	28,009 4,395 1,576 87	20,681 4,416 908 257	19,038 5,090 1,107 227	24,003 2,594 2,731 84	41,665 5,028 3,331 144
Alsek River (all gear)	Sockeye Coho Chinook	508 29 73	1,786 N/A 85	2,110 29 214	1,716 7 294	717 3 125	0 34 7	1,340 1 41	1,327 0 19	594 71 114	2,122 127 185	2,795 192 228	2,255 289 2,194	1,177 99 277	745 52 142	554 28 412	585 112 346	520 5 530	1,361 65 1,098
Areas 3 (1-4)* (commercial net)****	[illegible]	1,249,570	118,164	160,757	30,686	404,460	8,330	1,740,270	228,378	878,552	402,459	667,103	876,631	473,318	127,000	2,162,280	61,000	329,000	987,000
Area 1 (commercial troll)****	Pink	84,216	57,013	52,221	19,948	60,402	29,295	61,276	34,854	39,430	27,751	98,347	41,418	175,000	28,295	25,000	0	261,000	732,000
North Coast** (troll + sport)	Chinook	115,914 69,264+ 46,650	120,305 80,256+ 40,050	122,660 74,660+ 48,000	136,613 90,213+ 46,400	109,470 75,470+ 34,000	95,647 52,147+ 43,500	144,235 83,235 + 61,000	215,985 151,485 + 64,500	243,606 174,806 + 68,800	241,508 167,508 + 74,000	191,657 137,357 + 54,300	150,137 103,037 + 47,100	43,500	32,048	70,701	144,650	145,568	26,900
West Coast Vancouver Island (troll + sport + FN)	Chinook	108,710 43,043+ 61,712+ 3,955	130,719 62,573+ 61,822+ 4,300	206,569 123,930+ 78,350+ 4,289	137,660 79,123+ 52,698+ 5,839	125,488 53,191+ 68,775+ 3,381	143,81789,704 + 50,319+ 3794	139,150 87,921 + 46,229 + 5,000	145,970 103,978 + 36,992 + 5,000	195,791 143,614 + 52,177	210,875 168,837+ 42,038	179,706 152,677 + 27,029	165,824 134,308+ 31,516	102,266 78,302+ 23,964	89,139 64,216+ 24,923	28,540 6,906+ 21,634	10,855 6,678+ 4,177	59,796 53,396+ 6,400	3677 4+ 3,673
Fraser River Canadian Commercial Catch	Sockeye Pink	2,124 2,855,441	0 0	443,000 4,751,800	9,305,104 0	0 1,442,840	16,942 0	0 333,300	4,633,623 68,325	137,000 338,000	1,993,800 0	1,042,986 1,149,189	2,182,700 0	295,000 579,000	953,000 0	54,000 3,000	1,295,000 0	8,737,000 3,660,000	1,019,000 0
Fraser River U.S. Commercial Catch	Sockeye Pink	4,609 3,057,222	105,100 0	266,000 2,895,400	1,970,000 0	0 2,726,230	49,800 0	3,900 377,600	701,300 0	0 0	192,200 0	244,000 773,000	434,600 0	240,000 427,000	494,000	41,000 3,000	707,000 0	1,578,000 1,565,000	257,000 0
West Coast Vancouver Island (commercial troll)	Coho	5,899	1,988	0	458	0	369	1,424	2,399	5,989	0	0	0	0	0	0	0	0	761,000
Johnstone Strait (commercial catch)***	Chum	597,003	391,324	751,560	62,510	510,708	298,931	494,944	800,363	787,226	1,089,100	1,026,029	700,000	236,000	161,000	41,411	1,820,000	104,593	101,971

*AREA 5-11 CATCHES INCLUDED PRIOR TO 1999 AND EXCLUDED FROM 1995-1998 INCLUSIVE. NOT PART OF 1999 ANNEX IV PROVISIONS.

** NORTH COAST CATCH EXCLUDES TERMINAL EXCLUSION CATCHES OF 8,000 ('91), 8,100 ('92), 7,400 ('93), 6,400 ('94), 1,702 ('95), 16,000 ('96), 5,943 ('97), and 2,182 in 1998. NO TERMINAL EXCLUSION IN THE 1999 AGREEMENT - COVERED UNDER THE AABM ARRANGEMENT; CENTRAL COAST AREAS NOT PART OF 1999 ANNEX IV PROVISIONS.

*** CANADIAN CATCH INCLUDES COMMERCIAL, FSC AND TEST-FISH CATCHES IN AREAS 11-13 FOR 1991-94 INCLUSIVE, AND IN AREAS 12-13 FOR 1995 TO 2004 INCLUSIVE. 2002-PRESENT, CATCHES FROM FISHERIES MANAGED TO FIXED HARVEST RATE OF 20%

****ALL PINK CATCHES FOR ALL YEARS (1995-2012) IN AREAS 3(1-4) AND AREA 1 HAVE BEEN UPDATED TO REFLECT FINAL ESTIMATES. NOTE 1: WCVI CHINOOK CATCHES FROM 1995-1998 ARE REPORTED BY CALENDAR YEAR. CATCHES FROM 2008-1999 ARE REPORTED BY CHINOOK YEAR (OCT-SEPT) NOTE 2: 1999 CATCHES ARE REPORTED ACCORDING TO FISHERIES/STOCKS UNDER THE 1999 ANNEX IV PROVISIONS.

Table 55.- Preliminary 2013 South Coast Sockeye Catch by Fishery and Area

Fishery	Gear	Fishery (Area)	Numbers			
			Non-Fraser Kept	Unknown Origin	Fraser Kept	All stocks Released
Commercial	Area G Troll	WCVI AABM Chinook (23 - 27, 123 - 127)				
	Area H Troll	Fraser Sockeye (12,13)[a]				<10
	Area H Troll	JST Chum (12,13)				0
	Area H Troll	MVI Chum (14)				0
	Area B Seine	Barkley Sockeye (23)	9,128		0	0
	Area B Seine	Fraser Sockeye (12,13)	15		870	14,589
	Area B Seine	Fraser Sockeye (29)	0		1,233	10,356
	Area B Seine	Squamish Pink (28)	0	3	0	3
	Area B Seine	Nitinat Chum (21, 121)	0		0	0
	Area B Seine	JST Chum (12,13)	0		1	12
	Area B Seine	Fraser Chum (29)				
	Area B Seine	MVI Chum (14)				
	Area D Gillnet	Barkley Sockeye (23)	11,390		0	0
	Area D Gillnet	Barkley Chum (23)	0		0	0
	Area D Gillnet	Somass Chinook (23)	0		0	0
	Area D Gillnet	Clayoquot Chum (24)	0		0	0
	Area D Gillnet	Tlupana Chinook (25)	0		0	0
	Area D Gillnet	JST Chum (12,13)	0		0	1
	Area D Gillnet	MVI Chum (14)				
	Area E Gillnet	Fraser Chum (29)	0		0	4
	Area E Gillnet	Nitinat Chum (21, 121)	0		0	0
	Area E Gillnet	Cowichan Chum (Area 18)				
	Maa-nulth HA	Henderson Sockey (23)	323		0	0
Total Commercial Catch			**20,856**	**3**	**2,104**	**24,965**
Recreational	Sport	Juan de Fuca (19,20)	185			1485
	Sport	Strait of Georgia (14-18,28,29)	31			532
	Sport	Johnstone Strait (11-13)	0			3091
	Sport	WCVI - Inshore (20W-27)	16796	**		5336
	Sport	WCVI - Offshore (121-127)	4			0
	Sport	Fraser River				
Total Recreational Catch			**17,016**		**0**	**10,444**
First Nations FSC		Johnstone Strait	3,336		111,003	
		Strait of Georgia	0		7,725	
		WCVI	26,189	8,377	[b]	
		Fraser River	80		260,598	2,605
Total First Nations FSC Catch			**29,605**	**8,377**	**379,326**	**2,605**
First Nations EO		Johnstone Strait				
		Strait of Georgia				
		WCVI	21,208		0	
		Fraser River	0		21	14,143
Total First Nations EO Catch			**21,208**		**21**	**14,143**
First Nations ESSR		Johnstone Strait				
		Strait of Georgia				
		WCVI				
		Fraser River	0	0	0	0
Total First Nations ESSR Catch			**0**	**0**	**0**	**0**
TOTAL - ALL FISHERIES			**88,685**	**8,377**	**381,451**	**52,157**

[a] Fewer than 3 vessels participated in this fishery therefore the actual catch is considered confidential

[b] 8377 sockeye caught in Areas 20, 121, 123; stock ID not confirmed as of Dec 1, 2013

**includes 3528 jacks

*Estimates not yet available for all the assessed Fraser River recreational fisheries

Table 56.- Preliminary 2013 South Coast Pink Catch by Fishery and Area

Fishery	Gear	Fishery (Area)	Numbers	
			Kept	Released
Commercial	Area G Troll	WCVI AABM Chinook (23 - 27, 123 - 127)	38	21
	T'aa-wiihak	WCVI AABM Chinook (23 - 27, 123 - 127)	161	0
	Area H Troll	Fraser Sockeye (12,13)[a]	<100	0
	Area H Troll	JST Chum (12,13)	19	26
	Area H Troll	MVI Chum (14)		
	Area B Seine	Barkley Sockeye (23)		
	Area B Seine	Fraser Sockeye (12,13)	827,701	171
	Area B Seine	Fraser Sockeye (29)	1,451,459	2,215
	Area B Seine	Squamish Pink (28)	282,417	2,400
	Area B Seine	Nitinat Chum (21, 121)		
	Area B Seine	JST Chum (12,13)	792	5
	Area B Seine	Fraser Chum (29)	2	0
	Area B Seine	MVI Chum (14)		
	Area D Gillnet	Barkley Sockeye (23)	0	1
	Area D Gillnet	Barkley Chum (23)	4	0
	Area D Gillnet	Somass Chinook (23)	0	0
	Area D Gillnet	Clayoquot Chum (24)	0	0
	Area D Gillnet	Tlupana Chinook (25)	0	0
	Area D Gillnet	JST Chum (12,13)	4	11
	Area D Gillnet	MVI Chum (14)	0	0
	Area E Gillnet	Fraser Chum (29)	1	46
	Area E Gillnet	Nitinat Chum (21, 121)	0	0
	Area E Gillnet	Cowichan Chum (Area 18)	0	0
Total Commercial Catch			**2,562,698**	**4,896**
Recreational	Sport	Juan de Fuca (19,20)	41476	23124
	Sport	Strait of Georgia (14-18,28,29)	11268	4675
	Sport	Johnstone Strait (11-13)	36446	15498
	Sport	WCVI - Inshore (20W-27)	2223	2584
	Sport	WCVI - Offshore (121-127)	4079	11581
	Sport	Fraser River		
Total Recreational Catch			**95,492**	**57,462**
First Nations FSC		Johnstone Strait	31,384	16,502
		Strait of Georgia	133	0
		WCVI	661	0
		Fraser River	17,110	3,771
Total First Nations FSC Catch			**49,288**	**20,273**
First Nations EO		Johnstone Strait		
		Strait of Georgia		
		WCVI	0	0
		Fraser River	914,122	7,460
Total First Nations EO Catch			**914,122**	**7,460**
First Nations ESSR		Johnstone Strait	155,830	0
		Strait of Georgia		
		WCVI		
		Fraser River	0	0
Total First Nations ESSR Catch			**155,830**	**0**
TOTAL - ALL FISHERIES			**3,777,330**	**90,091**

[a] Fewer than 3 vessels participated in this fishery therefore the actual catch is considered confidential

*Estimates not yet available for all the assessed Fraser River recreational fisheries

Table 57.- Preliminary 2013 South Coast AABM Chinook Catch by Fishery and Area

AABM Chinook

			Numbers	
PST Regime	**Fishery**	**Month**	**Kept**	**Released**
WCVI-AABM	Area G Troll *	Oct-12	3,344	1,214
		Nov-12	230	77
		Dec-12	312	119
		Jan-13	1,018	194
		Feb-13	358	50
		Mar-13	501	25
		Apr-13	1,374	43
		May-13	25,737	3,578
		Jun-13	0	0
		Jul-13	0	0
		Aug-13	0	0
	**	Sep-13	2,519	273
	Taaq-wiihak	April -Aug 13	7,650	0
Total			**43,043**	**5,573**
Recreational	Sport	WCVI - Inshore (20W-27)	8,080	7,052
	Sport	WCVI - Offshore (121-127)	53,632	49,048
Total			**61,712**	**56,100**
First Nations	Johnstone Strait			
	Strait of Georgia			
	WCVI Offshore		3,955	0
	WCVI Inshore		0	0
	Fraser River			
Total			**3,955**	**0**
All Total			**108,710**	**61,673**

*Oct'12-Sept'13

** includes release data from Sub-legal DNA sampling program

Table 58.- Preliminary 2013 South Coast ISBM Chinook Catch by Fishery and Area

Fishery	Gear	Fishery (Area)	Numbers		
			Kept	Released	
ISBM	Area G Troll	WCVI Chinook	0	0	
Taaq-wiihak	Demo Fishery	Tlupana Chinook (25)	0	0	
	Area H Troll	Fraser Sockeye (12,13)[a]	0	0	
	Area H Troll	JST Chum (12,13)	0	13	
	Area H Troll	MVI Chum (14)			
	Area B Seine	Barkley Sockeye (23)	0	19	
	Area B Seine	Fraser Sockeye (12,13)	31	674	
	Area B Seine	Fraser Sockeye (29)	75	3,923	
	Area B Seine	Squamish Pink (28)	2	5	
	Area B Seine	Nitinat Chum (21, 121)	0	0	
	Area B Seine	JST Chum (12,13)	4	56	
	Area B Seine	Fraser Chum (29)	0	3	°
	Area B Seine	MVI Chum (14)			
	Area D Gillnet	Barkley Sockeye (23)	171	14	
	Area D Gillnet	Barkley Chum (23)	0	0	
	Area D Gillnet	Somass Chinook (23)	0	0	
	Area D Gillnet	Clayoquot Chum (24)	0	0	
	Area D Gillnet	Tlupana Chinook (25)	8,688	0	
	Area D Gillnet	JST Chum (12,13)	0	7	
	Area D Gillnet	MVI Chum (14)			
	Area E Gillnet	Fraser Chum (29)	5	21	°
	Area E Gillnet	Nitinat Chum (21, 121)	0	0	
	Area E Gillnet	Nanaimo Chum (Area 17)	0	0	
Total Commercial Catch			**8,976**	**4,735**	
Recreational	Sport	Juan de Fuca (19,20)	22922	18000	
	Sport	Strait of Georgia (14-18,28,29)	11580	49889	
	Sport	Johnstone Strait (11-13)	21935	32267	
	Sport	WCVI - Inshore (20W-27)	35519	27,052	
	Sport	WCVI - Offshore (121-127)	NA	NA	
	Sport	Fraser River	2,527	199	•
Total Recreational Catch			**94,483**	**127,407**	
First Nations FSC		Johnstone Strait	258	0	
		Strait of Georgia	843	0	
		WCVI	1,101	0	
		Fraser River	14,109	113	
Total First Nations FSC Catch			**16,311**	**113**	
First Nations EO		Johnstone Strait			
		Strait of Georgia			
		WCVI	0	0	
		Fraser River	1,852	6,202	
Total First Nations EO Catch			**1,852**	**6,202**	
First Nations ESSR		Johnstone Strait			
		Strait of Georgia*	2,266	0	
		WCVI	37,596	0	
		Fraser River	8,745	0	
Total First Nations ESSR Catch			**48,607**	**0**	
TOTAL - ALL FISHERIES			**170,229**	**138,457**	

*Number includes both adults and jacks; FSC & ESSR combined.

°only includes in-river chum fisheries

*Estimates not yet available for all the assessed Fraser River recreational fisheries

Table 59.- Preliminary 2013 South Coast Coho Catch by Fishery and Area

Fishery	Gear	Fishery (Area)	Numbers	
			Kept	Released
Commercial	Area G Troll	WCVI AABM Chinook (23 - 27, 123 - 127)	5,499	1,949
	T'aaq-wiihak	WCVI AABM Chinook (23 - 27, 123 - 127)	0	0
	Area H Troll	Fraser Sockeye (12,13)[a]	0	9
	Area H Troll	JST Chum (12,13)	7	850
	Area H Troll	MVI Chum (14)	0	0
	Area B Seine	Barkley Sockeye (23)	0	5
	Area B Seine	Fraser Sockeye (12,13)	502	12,360
	Area B Seine	Fraser Sockeye (29)	428	5,578
	Area B Seine	Squamish Pink (28)	3	11
	Area B Seine	Nitinat Chum (21, 121)	0	0
	Area B Seine	JST Chum (12,13)	1,662	4,995
	Area B Seine	Fraser Chum (29)	0	101 °
	Area B Seine	MVI Chum (14)	0	0
	Area D Gillnet	Barkley Sockeye (23)	1,070	40
	Area D Gillnet	Barkley Chum (23)	33	4
	Area D Gillnet	Somass Chinook (23)	0	0
	Area D Gillnet	Clayoquot Chum (24)	0	0
	Area D Gillnet	Tlupana Chinook (25)	2	0
	Area D Gillnet	JST Chum (12,13)	17	1,269
	Area D Gillnet	MVI Chum (14)	0	93
	Area E Gillnet	Fraser Chum (29)	30	1,551 °
	Area E Gillnet	Nitinat Chum (21, 121)	3	44
	Area E Gillnet	Nanaimo Chum (Area 17)	0	27
Total Commercial Catch			**9,256**	**28,886**
Recreational	Sport	Juan de Fuca (19,20)	20108	59081
	Sport	Strait of Georgia (14-18,28,29)	10335	34234
	Sport	Johnstone Strait (11-13)	20085	69164
	Sport	WCVI - Inshore (20W-27)	47685	40974
	Sport	WCVI - Offshore (121-127)	24258	65284
	Sport	Fraser River	0	5 •
Total Recreational Catch			**122,471**	**268,742**
First Nations FSC		Johnstone Strait	1,017	0
		Strait of Georgia	230	0
		WCVI	14,329	0
		Fraser River	3,643	418
Total First Nations FSC Catch			**19,219**	**418**
First Nations EO		Johnstone Strait		
		Strait of Georgia		
		WCVI		
		Fraser River	154	11,759
Total First Nations EO Catch			**154**	**11,759**
First Nations ESSR		Johnstone Strait		
		Strait of Georgia	11,719	0
		WCVI	13,316	0
		Fraser River	43,932	0
Total First Nations ESSR Catch			**68,967**	**0**
TOTAL - ALL FISHERIES			**220,067**	**309,805**

°only includes in-river chum fisheries

*Estimates not yet available for all the assessed Fraser River recreational fisheries

Table 60.- Preliminary 2013 South Coast Chum Catch by Fishery and Area

Fishery	Gear	Fishery (Area)	Numbers		
			Kept	Released	
Commercial	Area G Troll	WCVI AABM Chinook (23 - 27, 123 - 127)	176	3	
	Taa-wiihak	WCVI AABM Chinook (23 - 27, 123 - 127)	11	0	
	Area H Troll	Fraser Sockeye (12,13)[a]			
	Area H Troll	JST Chum (12,13)	42,374	0	
	Area H Troll	MVI Chum (14)	0	0	
	Area B Seine	Barkley Sockeye (23)	0	0	
	Area B Seine	Fraser Sockeye (12,13)	7,893	377	
	Area B Seine	Fraser Sockeye (29)	943	226	
	Area B Seine	Squamish Pink (28)	0	0	
	Area B Seine	Nitinat Chum (21, 121)	0	0	
	Area B Seine	JST Chum (12,13)	424,157	0	
	Area B Seine	Fraser Chum (29)	6,535	0	°
	Area B Seine	MVI Chum (14)	7	0	
	Area D Gillnet	Barkley Sockeye (23)	1	0	
	Area D Gillnet	Barkley Chum (23)	1,418	1	
	Area D Gillnet	Somass Chinook (23)	0	0	
	Area D Gillnet	Clayoquot Chum (24)	0	0	
	Area D Gillnet	Tlupana Chinook (25)	3	2	
	Area D Gillnet	JST Chum (12,13)	122,579	8	
	Area D Gillnet	MVI Chum (14)	30,872	0	
	Area E Gillnet	Fraser Chum (29)	93,189	61	°
	Area E Gillnet	Nitinat Chum (21, 121)	15,730	1	
	Area E Gillnet	Nanaimo Chum (Area 17)	9,773	0	
Total Commercial Catch			**755,661**	**679**	
Recreational	Sport	Juan de Fuca (19,20)	132	34	
	Sport	Strait of Georgia (14-18,28,29)	1,000	0	
	Sport	Johnstone Strait (11-13)	4,500	26	
	Sport	WCVI - Inshore (20W-27)	26	2	
	Sport	WCVI - Offshore (121-127)	43	41	
	Sport	Fraser River			*
Total Recreational Catch			**5,701**	**103**	
First Nations FSC		Johnstone Strait	10,020	1	
		Strait of Georgia	4,790	0	
		WCVI	2,009	0	
		Fraser River	36,969	42	
Total First Nations FSC Catch			**53,788**	**43**	
First Nations EO		Johnstone Strait			
		Strait of Georgia	0	0	
		WCVI	0	0	
		Fraser River	112,401	1,720	
Total First Nations EO Catch			**112,401**	**1,720**	
First Nations ESSR		Johnstone Strait			
		Strait of Georgia	18,334	0	
		WCVI	25,150	0	
		Fraser River	28,103	0	
Total First Nations ESSR Catch			**71,587**	**0**	
TOTAL - ALL FISHERIES			**999,138**	**2,545**	

°only includes in-river chum fisheries

*Estimates not yet available for all the assessed Fraser River recreational fisheries

Table 61.- Preliminary 2013 Southern B.C. Commercial Catch Totals by Gear and Area

License Group	Fishing Area	Adult Sockeye Kept	Sockeye Released	Coho Kept	Coho Released	Pink Kept	Pink Released	Chum Kept	Chum Released	Chinook Kept	Chinook Released
Area G Troll	WCVI AABM Chinook (23 - 27, 123 - 127)	0	0	5,499	1,949	38	21	176	3	35,393	5,573
Taaq-wiihak Demo	WCVI AABM Chinook (23 - 27, 123 - 127)	0	0	0	0	161	0	11	0	7,650	0
Area H Troll	Fraser Sockeye (12,13)[a]	0	<10	0	9	<100	0	0	0	0	0
Area H Troll	JST Chum (12,13)	0	0	7	850	19	26	42,374	0	0	13
Area H Troll	MVI Chum (14)	0	0	0	0	0	0	0	0	0	0
Area B Seine	Barkley Sockeye (23)	9,128	0	0	5	0	0	0	0	0	19
Area B Seine	Fraser Sockeye (12,13)	885	14,589	502	12,360	827,701	171	7,893	377	31	674
Area B Seine	Fraser Sockeye (29)	1,233	10,356	428	5,578	1,451,459	2,215	943	226	75	3,923
Area B Seine	Squamish Pink (28)	3	3	3	11	282,417	2,400	0	0	2	5
Area B Seine	Nitinat Chum (21, 121)	0	0	0	0	0	0	0	0	0	0
Area B Seine	JST Chum (12,13)	1	12	1,662	4,995	792	5	424,157	0	4	56
Area B Seine	Fraser Chum (29)	0	0	0	101	2	0	6,535	0	0	3
Area B Seine	MVI Chum (14)	0	0	0	0	0	0	7	0	0	0
Area D Gillnet	Barkley Sockeye (23)	11,390	0	1,070	40	0	1	1		171	14
Area D Gillnet	Barkley Chum (23)	0	0	33	4	4	0	1,418	1	0	0
Area D Gillnet	Somass Chinook (23)	0	0	0	0	0	0	0	0	0	0
Area D Gillnet	Clayoquot Chum (24)	0	0	0	0	0	0	0	0	0	0
Area D Gillnet	Tlupana Chinook (25)	0	0	2	0	0	0	3	2	8,688	0
Area D Gillnet	JST Chum (12,13)	0	1	17	1,269	4	11	122,579	8	0	7
Area D Gillnet	MVI Chum (14)	0	0	0	93	0	0	30,872	0	0	5
Area E Gillnet	Fraser Chum (29)	0	4	30	1,551	1	46	93,189	61	5	21
Area E Gillnet	Nitinat Chum (21, 121)	0	0	3	44	0	0	15,730	0	0	0
Area E Gillnet	Nanaimo Chum (Area 17)	0	0	0	27	0	0	9,773	0	0	0
Maa-nulth HA	Henderson Sockeye (23)	323	0								
TOTALS		**22,963**	**24,965**	**9,256**	**28,886**	**2,562,598**	**4,896**	**755,661**	**678**	**52,019**	**10,313**

[a] Fewer than 3 vessels participated in this fishery therefore the actual catch is considered confidential.

Table 62.- Preliminary 2013 Southern B.C. Recreational Catch Totals by Area

Fishing Area	Sockeye Kept	Sockeye Released	Coho Kept	Coho Released	Pink Kept	Pink Released	Chum Kept	Chum Released	Chinook ISBM Kept	Chinook ISBM Released	Chinook AABM Kept	Chinook AABM Released
Juan de Fuca (19,20)	185	1,485	20,108	59,081	41,476	23,124	132	34	22,922	18,000	NA	NA
Strait of Georgia (14-18,28,29)	31	532	10,335	34,234	11,268	4,675	1,000	0	11,580	49,889	NA	NA
Johnstone Strait (11-13)	0	3,091	20,085	69,164	36,446	15,498	4,500	26	21,935	32,267	NA	NA
WCVI - Inshore (20W-27)	16,796	5,336	47,685	40,974	2,223	2,584	26	2	35,519	27,052	8,080	7,052
WCVI - Offshore (121-127)	4	0	24,258	65,284	4,079	11,581	43	41	NA	NA	53,632	49,048
Fraser River			0	5			0	0	2,527	199	0	0
TOTAL	**17,016**	**10,444**	**122,471**	**268,737**	**95,492**	**57,462**	**5,701**	**103**	**91,956**	**127,208**	**61,712**	**56,100**

All totals are preliminary.

JDF includes all of 19 and a portion of Area 20 (20 SG).

WCVI inshore contains a portion of 20W (West of Sherringham)

*Estimates not yet available for all the assessed Fraser River recreational fisheries

Table 63.- Preliminary 2013 Southern B.C. First Nations Catch Estimates by Area

Fishery type	Fishing Area	Sockeye Kept	Sockeye Released	Coho Kept	Coho Released	Pink Kept	Pink Released	Chum Kept	Chum Released	Chinook ISBM Kept	Chinook ISBM Released	Chinook AABM Kept	Chinook AABM Released
FSC	Johnstone Strait	114,339		1,017		31,384	16,502	10,020	1	258			
	Strait of Georgia	7,725		230		133		4,790		843			
	WCVI	34,566		14,329		661		2,009		1,101	0	3,955	0
	Fraser River	260,678	2,605	3,643	418	17,110	3,771	36,969	42	14,109	113		
TOTAL		**417,308**	**2,605**	**19,219**	**418**	**49,288**	**20,273**	**53,788**	**43**	**16,311**	**113**	**3,955**	**0**
EO	Johnstone Strait												
	Strait of Georgia												
	WCVI	21,208		0	0	0	0	0	0	0	0	0	0
	Fraser River	21	14,143	154	11,759	914,122	7,460	112,401	1,720	1,852	6,202		
TOTAL		**21,229**	**14,143**	**154**	**11,759**	**914,122**	**7,460**	**112,401**	**1,720**	**1,852**	**6,202**	**0**	**0**
ESSR	Johnstone Strait					155,830	0						
	Strait of Georgia			11,719				18,334		2,266			
	WCVI			13,316	0			25,150	0	37,596	0	0	0
	Fraser River	0	0	43,932	0	0	0	28,103	0	8,745	0	0	0
TOTAL		**0**	**0**	**68,967**	**0**	**155,830**	**0**	**71,587**	**0**	**48,607**	**0**	**0**	**0**
All FN fisheries		**438,537**	**16,748**	**88,340**	**12,177**	**1,119,240**	**27,733**	**237,776**	**1,763**	**66,770**	**6,315**	**3,955**	**0**

Table 64.- Preliminary 2013 South Coast Test Fishery Catches

Test-Fisheries	Sockeye retain	Sockeye release	Coho retain	Coho release	Pink retain	Pink release	Chum retain	Chum release	Chinook retain	Chinook release	GRAND TOTAL
Albion Chinook Gillnet	669	0	0	43	177	0	3,308	0	1,054	0	**5,251**
Albion Chum Gillnet	126	0	0	383	1,029	0	10,902	0	340	0	**12,780**
Area 12 Chum Seine	8	31	0	2,291	4,400	60	38,426	70,691	0	14	**115,921**
Naka Creek Sockeye Gillnet	2,136	0	0	101	1,385	0	0	30	7	5	**3,664**
Area 13 Sockeye Seine	23,685	34,150	0	624	69,980	284,557	223	1,200	0	193	**414,612**
Area 23 Sockeye Seine	9,358	131	0	137	0	5	0	1	0	225	**9,857**
Blinkhorn Sockeye Seine	35,550	64,752	0	896	84,478	556,960	772	1,701	0	219	**745,328**
Cowichan Chum Seine	0	0	0	25	0	0	3,441	1,969	0	2	**5,437**
Saanich Chum Seine	0	0	0	14	0	0	4,829	6,424	0	0	**11,267**
Round Island Sockeye Gillnet	1,699	9	233	169	2,633	8	36	0	27	19	**4,833**
San Juan Sockeye Seine	12,506	3,253	256	4,505	32,253	133,211	9	110	2	1,103	**187,208**
Qualark Gillnet	3,541	11	56	17	1,444	409	1	1	293	67	**5,840**
San Juan Sockeye Gillnet	8,778	0	221	671	6,307	0	5	1	271	308	**16,562**
Whonnock Gillnet	3,426	44	0	482	5,586	74	1,148	18	1,097	17	**11,892**
Cottonwood Gillnet	2,461	24	0	61	820	1	4	0	116	38	**3,525**
Grand Total	**103,943**	**102,405**	**766**	**10,419**	**210,492**	**975,285**	**63,104**	**82,146**	**3,207**	**2,210**	**1,553,977**

NOTES:

Area 12 Chum Seine	catch includes 4 sockeye jacks released, 2 sockeye jacks kept, 15 coho jacks released, 2 chinook jacks released
Naka Creek Sockeye Gillnet	catch includes 1 sockeye jack kept, 1 chinook jack retained, 2 chinook jacks released
Area 13 Sockeye Seine	catch includes 403 sockeye jack released, 211 sockeye jacks kept, 10 chinook jacks released
Area 23 Sockeye Seine	catch includes 116 chinook jacks released, 106 coho jack released, 4,047 sockeye jacks kept, 130 sockeye jacks released
Blinkhorn Sockeye Seine	catch includes 539 sockeye jacks released, 366 sockeye jacks kept, 6 coho jacks released, 11 chinook jacks released
Cowichan Chum Seine	catch includes 1 coho jack released, 2 chinook jacks released
Saanich Chum Seine	catch includes 1 chinook jack released
Round Island Sockeye Gillnet	catch includes 2 chinook jacks retained, 1 chinook jack released, all coho retained given to Fort Rupert Native Band
San Juan Sockeye Seine	catch includes 15 sockeye jacks released, 81 sockeye jacks retained, 827 chin jacks released
San Juan Sockeye Gillnet	catch includes 22 chinook jacks retained, 268 chinook jacks released
Whonnock Gillnet	catch includes 8 sockeye jacks retained, 97 chinook jacks retained, 7 chinook jacks released
Cottonwood Gillnet	catch includes 5 chinook jacks released
Qualark Gillnet	catch includes 51 Chinook jacks and 80 Sockeye jacks retained

D. 2013 UPDATE REPORTS FOR SALMONID ENHANCEMENT PROGRAMS IN THE UNITED STATES AND CANADA

The Pacific Salmon Treaty between Canada and the United States requires that information be exchanged annually regarding operation of and plans for existing enhancement projects, plans for new projects, and views concerning the other country's enhancement projects. In 1988, a committee was formed to develop recommendations for the pre- and post-season and enhancement report formats. In summary, the committee proposed that:

- detailed reports on existing enhancement facilities of the type produced in 1987 be prepared every four years;
- the Parties will annually update information on eggs taken, fry or smolt released and adults back to the facility; significant changes in facility mission or production will be highlighted in narratives; and
- the Parties will provide periodic reports through the appropriate panels on new enhancement plans.

1. 2004 ANNUAL REPORT ON THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2014.

2. 2005 ANNUAL REPORT ON THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2014.

3. 2006 ANNUAL REPORT ON THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2014.

6. 2007 ANNUAL REPORT OF THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2014.

7. 2008 ANNUAL REPORT OF THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2014.

8. 2009 ANNUAL REPORT OF THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2014.

9. 2010 ANNUAL REPORT OF THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2014.

10. 2011 ANNUAL REPORT OF THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2014.

11. 2012 ANNUAL REPORT OF THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2014.

12. 2013 ANNUAL REPORT OF THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2014.

13. 2006 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2014.

14. 2007 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2014.

15. 2008 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2014.

16. 2009 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2014.

17. 2010 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2014.

18. 2011 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2014.

19. 2012 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2014.

20. 2013 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COMUMBIA

This report had not been received by March 31, 2014.

Reports of the Joint Technical Committees

PART V
REPORTS OF THE JOINT TECHNICAL COMMITTEES

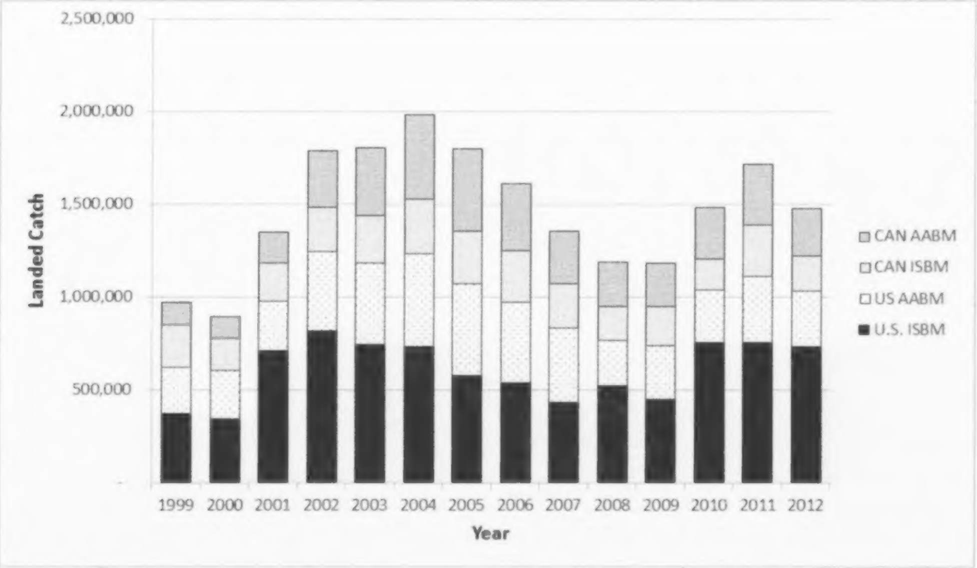
Executive summaries of reports submitted to the Commission by the joint technical committees during the period April 1, 2012 to March 31, 2013 are presented in this section. Copies of the complete reports are available from the library of the Pacific Salmon Commission.

A. JOINT CHINOOK TECHNICAL COMMITTEE

ANNUAL REPORT OF CATCH AND ESCAPEMENT FOR 2012
TCCHINOOK (13)-1 – July 2013

The Pacific Salmon Treaty (PST) requires the Chinook Technical Committee (CTC) to report annual catch and escapement data for Chinook salmon. The CTC provides an annual report to the Pacific Salmon Commission (PSC) to fulfil this obligation as agreed by Canada and the U.S. under Chapter 3 of the Treaty. This report contains four sections: Chinook salmon catch, escapements, a new section on stock status that provides an indication of stock performance in the context of management objectives, and a summary of the Sentinel Stocks Program for 2012.

Annual catch data for the report is compiled by Canada and the U.S. for their respective jurisdictions within the PST area according to fishery regimes, regional locations, and gear type with estimates of incidental mortality (IM). Section 1 summarizes fishery catches by region and available estimates of incidental mortality (IM) by fishery in 2012, with accompanying commentary on the fisheries, management, and derivation of IM. Landed catch (LC) is fully reported in the appendices for each geographic area covered under the PST; a summary for all PSC AABM and ISBM fisheries, from 1999 to 2012, is provided in the figure below. In addition, time series of available IM estimates were added this year in Appendix A for individual fisheries. Appendix A also includes a coastwide summary of the historical time series of LC, IM, and their sum, total mortality (TM), across all AABM and ISBM fisheries.

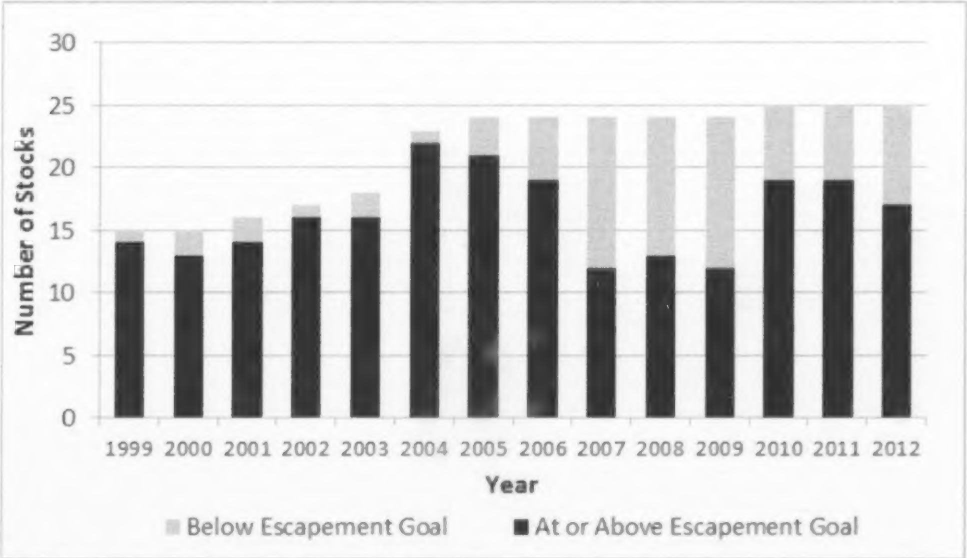


Estimates of landed catch for U.S. and Canada AABM and ISBM fisheries 1999–2012.

The preliminary estimate of total LC of Chinook salmon for all PSC fisheries prosecuted in 2012 was 1,474,149, of which 1,029,554 and 444,595 were taken in U.S. and Canadian fisheries, respectively. The estimated total IM associated with this harvest is 211,881 nominal Chinook salmon. The TM for all PSC fisheries in nominal fish was 1,686,030 Chinook salmon, of which 1,181,283 were taken in U.S. fisheries and 504,746 in Canadian fisheries. For U.S. fisheries, 71% of the LC and 69% of TM occurred in ISBM fisheries; in Canada, 43% of the LC and 44% of TM occurred in ISBM fisheries. For some component sport fisheries, 2012 LC and IM estimates are not yet available.

Section 2 includes an assessment of escapement for stocks with CTC accepted goals, and escapement data through 2012 for all PST escapement indicator stocks. The escapements of 50 naturally spawning escapement indicator stocks are reviewed annually, along with the results from the Sentinel Stocks Program (SSP). The CTC will continue to review escapement goals for stocks as they are provided by respective agencies. Biologically-based escapement goals have been accepted by the CTC for 25 of the 50 escapement indicator stocks/stock aggregates. For 12 of these, the escapement goal is defined as a range; for the remaining 13, the escapement goal is the point estimate of SMSY (escapement producing maximum sustained yield). Annual escapement that is more than 15% below the lower end of the range or the SMSY point estimate is of particular concern.

From 1999 to 2011, the percentage of stocks that met or exceeded escapement goals or goal ranges has varied from 50% to 96%. In 2012, 17 of 25 stocks (68%) met or exceeded escapement objectives. Of the eight stocks below goal, three stocks (Chilkat, Andrew, and Chickamin) were within 15% of the target goal; five stocks (Situk, Unuk, Alsek, Harrison, and Cowichan) were more than 15% below goal.



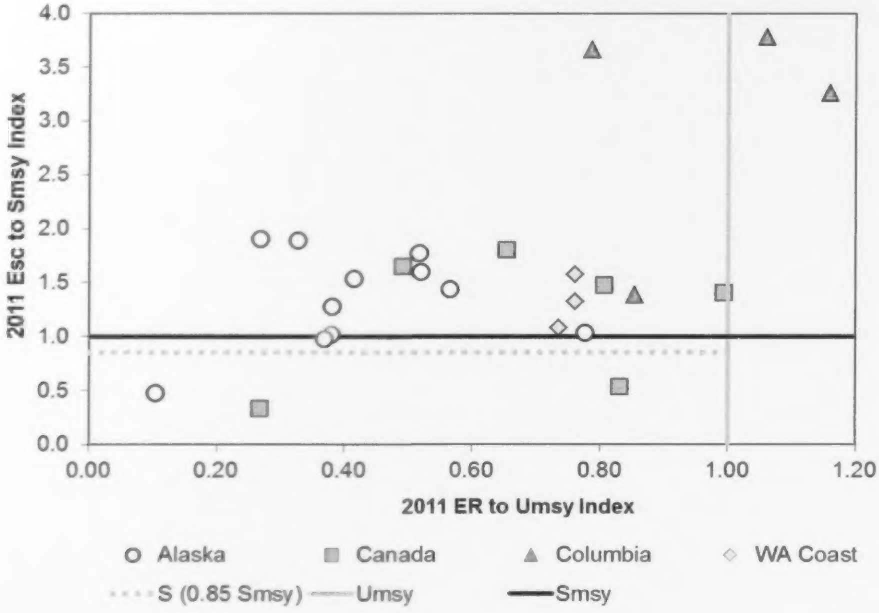
Number and status of stocks with CTC-accepted escapement goals for 1999–2012.

The CTC evaluated the performance of the stock groups against the criteria for triggering additional management action in regards to PST Chapter 3, Paragraph 13 (c), based upon observed escapements and exploitation rates through 2012 and stock forecasts for 2013. No stock groups listed in Attachment I–III met the criteria for triggering additional management action for the 2011 and 2012 observed values. The 2012 observed escapement and 2013 forecast values indicate that one stock group (Fraser late, i.e., Harrison River) potentially meets the flagging criteria for triggering Paragraph 13 action, however 13(g) notes no further reduction will be taken in the West Coast Vancouver Island (WCVI) fishery unless otherwise agreed by the

PSC. Note that ISBM obligations for 2012 cannot be calculated for some stocks until 2014 because of a delay in required coded wire tag (CWT) data under current fishery monitoring programs.

No stocks in Attachments I-III of the PST with an agreed escapement objective were more than 15% below the management objective in both 2011 and 2012. However, only five of the 10 different stock groups in Attachments I–III have stocks with CTC-accepted management objectives that can be evaluated against Paragraph 13 (c) criteria, and 11 of these stocks had forecasts available for 2012. The CTC has identified a need to develop management objectives (higher priority) and forecast capabilities (lower priority) for more of the stocks and stock groups included in Attachments I–III to improve the efficacy of Paragraph 13.

A synoptic evaluation of stock status is presented in Section 3 for each escapement indicator stock for each region, summarizing the performance of those stocks relative to established goals over time. This evaluation draws upon the catch information in Section 1, escapement information in Section 2, and exploitation rates and other information to evaluate the status of stocks in a region. Synoptic plots present both the current status of stocks and the history of the stocks relative to PST management objectives to clearly summarize the performance of the stocks and fisheries management relative to established or potential goals. A synoptic summary figure for 24 stocks with 2011 data shows that the majority of stocks were in the safe zone. None of the stocks were in the high risk zone, however three stocks were in the low escapement and low exploitation zone. Two stocks had experienced high exploitation, but their escapements exceeded the escapement goal objective. When stock status was examined by region there was not a strong regional pattern, other than for Washington Coast.



Synoptic summary by region of stock status for stocks with escapement and exploitation rate data in 2011 (escapement and exploitation rate data for each stock was standardized to the stock-specific escapement goal and UMSY reference points).

A summary of the 2012 SSP is presented in Section 4. The goal of the SSP is to improve estimates of escapement for Chinook salmon stocks in the following five coastal areas: Northern British Columbia (NBC), Fraser River, WCVI, Puget Sound, and North Oregon Coast (NOC) to a level that meets or exceeds bilateral assessment accuracy and precision standards. The 2012 season is the fourth year of the program. In 2012, the

PSC approved $2,157,600 in funding for 14 projects. The funded projects estimated escapements for stocks in the Nass, Skeena (two projects), Harrison, Chilko, South Thompson, Burman, WCVI, Snohomish, Stillaguamish, Green, Siltez, and Nehalem rivers and to develop a statistical framework for escapement estimation in the WCVI. Escapement estimates and methods used to obtain those estimates are described in Section 4 and Appendix C for each of the funded programs.

The CTC has been working to develop bilateral data standards for the minimum (or desired) assessment program required to effectively implement the 2009 Agreement. For escapement indicator stocks, asymptotically accurate (unbiased) and a CV of 15% are the CTC data standards for escapement estimates. These standards were adopted in 2008 and documentation of that action is provided in Appendix D. In June 2013, the CTC adopted standards for escapement goals. A technical note (CTC Technical Note 1301) on maximum sustained yield (MSY) or other biologically-based escapement goals is provided in Appendix E.

2013 EXPLOITATION RATE ANALYSIS AND MODEL CALIBRATION. VOLUME ONE. TCCHINOOK (14)-1 V.1 – February 2014

The Pacific Salmon Treaty (PST) requires the Chinook Technical Committee (CTC) to report annual catches, harvest rate indices, estimates of incidental mortality (IM) and exploitation rates for all Chinook fisheries and stocks harvested within the Treaty area. The CTC provides an annual report to the Pacific Salmon Commission (PSC) to fulfil this obligation as agreed by Canada and the U.S. under Chapter 3 of the Treaty. This report contains four sections: Exploitation Rate Analysis (ERA), model calibration and output, evaluation of mark-selective fisheries (MSFs), and program improvements to the coastwide coded wire tag (CWT) program. Additionally, this report contains the results of the annual exploitation rate assessment of CWT data through 2011 (U.S. stocks) and 2012 (Canadian stocks), the preseason Chinook model calibration results for 2013 (CLB 1308), postseason Chinook model calibration results through 2012 (CLB 1309), and the CWT Improvement program results from 2012 and planned projects for 2013. Results include the abundance indices (AIs) for the aggregate abundance-based management (AABM) fisheries and individual stock base management (ISBM) indices for each country.

AABM Abundance Indices and Associated Catches

The pre- and postseason AIs for the three AABM fisheries, Southeast Alaska (SEAK), Northern British Columbia (NBC), and West Coast Vancouver Island (WCVI) are presented in Table 1. The 2009 PST Agreement specifies that the AABM fisheries are to be managed through the use of the AIs. Each calibration provides the postseason AIs for the previous year and the preseason AIs for the current year. Preseason AIs are used to estimate the total allowable catch limits in the upcoming fishing season. Subsequently, AIs and associated allowable catches from the first postseason model calibration for a fishing year are used to track catch overages and underages, per PST subparagraph 11(a)(i).

The 2009 Agreement specifies an allowable catch for each AI for each fishery. The maximum allowable treaty catch (total catch minus any hatchery add-on and exclusion catch) by fishery and year and the observed treaty catches are shown in Table 2.

Table 1.- Abundance Indices for 1999-2013 for the SEAK, NBC, and WCVI AABM fisheries. Postseason values for each year are from the first postseason calibration following the fishing year.

Year	SEAK		NBC		WCVI	
	Preseason	Postseason	Preseason	Postseason	Preseason	Postseason
1999	1.15	1.12	1.12	0.97	0.60	0.50
2000	1.14	1.10	1.00	0.95	0.54	0.47
2001	1.14	1.29	1.02	1.22	0.66	0.68
2002	1.74	1.82	1.45	1.63	0.95	0.92
2003	1.79	2.17	1.48	1.90	0.85	1.10
2004	1.88	2.06	1.67	1.83	0.90	0.98
2005	2.05	1.90	1.69	1.65	0.88	0.84
2006	1.69	1.73	1.53	1.50	0.75	0.68
2007	1.60	1.34	1.35	1.10	0.67	0.57
2008	1.07	1.01	0.96	0.93	0.76	0.64
2009	1.33	1.20	1.10	1.07	0.72	0.61
2010	1.35	1.31	1.17	1.23	0.96	0.95
2011	1.69	1.62	1.38	1.41	1.15	0.90
2012	1.52	1.24[1]	1.32	1.15[1]	0.89	0.76[1]
2013	1.20[1]		1.10[1]		0.77[1]	

[1] Due to changes in calibration procedures (reviewed in section 3.1.4), 2012 postseason (CLB 1309) and 2013 preseason (CLB 1308) AIs are based on different calibrations; the procedures and assumptions CLB 1309 mirror those used during the 2012 preseason calibration.

Table 2.- Preseason allowable catches for 2009-2013, and postseason allowable catches and observed catches for 2009-2012 for AABM fisheries. Postseason values for each year are from the first postseason calibration following the fishing year.

PST Treaty Allowable and Observed Catches									
Year	SEAK (T, N, S)[1]			NBC (T, S)			WCVI (T, S)		
	Preseason Allowable Catch	Postseason Allowable Catch	Observed Catch	Preseason Allowable Catch	Postseason Allowable Catch	Observed Catch	Preseason Allowable Catch	Postseason Allowable Catch	Observed Catch
2009	218,800	176,000	227,667[2]	143,000	139,100	109,470	107,800	91,300	124,617
2010	221,800	215,800	229,355[2]	152,100	160,400	136,613	143,700	142,300	139,047
2011	294,800	283,300	292,028[2]	182,400	186,800	122,660	196,800	134,800	204,232
2012	266,800	205,100	241,015[2]	173,600	149,500	120,307	133,300	113,800	134,468
2013	176,000			143,000			115,300		

[1] T = troll, N = net, and S = sport.

[2] Values changed because the method used to partition gillnet catch into large and nonlarge fish has changed. This change affects the computation of the terminal exclusion, add-on, and treaty catch.

Table 3 shows the differences between the postseason allowable catches and the observed treaty catches in AABM fisheries for 2009–2012, and the cumulative deviation for those years. In SEAK, the 2012 catch was 17.5% above the postseason allowable catch, and the cumulative differences were 2.5% above. In NBC, the 2012 catch was 19.5% below the preseason allowable catch and the cumulative differences were 25.1% below. In WCVI, the 2012 catch was 18.2% above and the cumulative differences were 1.5% below the postseason allowable catch. The SEAK, NBC, and WCVI AABM fisheries have been over the preseason allowable catch 10 (SEAK), 3 (NBC), and 9 (WCVI) of the last 14 years.

Table 3.- Deviations in numbers of Chinook salmon caught and percentages from allowable catches derived from the postseason AI (Table 2) for PST AABM fisheries in 2009-2012. Postseason values for each year are from the first postseason calibration following the fishing year.

Year	SEAK		NBC		WCVI	
	Number of Fish	**Percent Difference**	**Number of Fish**	**Percent Difference**	**Number of Fish**	**Percent Difference**
2009	51,667	29.4%	-29,630	-21.3%	33,317	36.5%
2010	13,555	6.3%	-23,787	-14.8%	-3,253	-2.3%
2011	8,728	3.1%	-64,140	-34.3%	69,432	51.5%
2012	35,915	17.5%	-29,193	-19.5%	20,668	18.2%
Cum.	**109,865**	**12.5%**	**-146,750**	**-22.5%**	**120,164**	**20.7%**

Overages and underages in AABM catches, relative to the first postseason calibration for a fishing year (Table 3), can arise due to the inseason management system, errors in the preseason calibration process (e.g., forecast error), or a combination of the two. The relative influence of each was evaluated by inspecting differences in actual landed catch and allowable catches from both preseason and postseason calibrations (Table 4). Regarding the inseason management system in 2012, the actual landed catch was less than the preseason allowable catch by 25,785 Chinook salmon in SEAK and by 53,293 in NBC. For WCVI, the actual landed catch was 1,168 more than the preseason allowable catch. In terms of the postseason allowable catches for evaluation of the provisions of the PST (subparagraph 11(a)(i)), actual catches exceeded the postseason allowable catches by 35,915 Chinook salmon in SEAK and by 20,668 in WCVI. Actual landed catch in NBC was 29,193 fish less than the postseason allowable catch.

Table 4.- Deviations in actual landed catch (LC), allowable landed catch determined from preseason model calibration (PreALC), and allowable landed catch determined from postseason model calibration (PostALC) for AABM fisheries from 1999 to 2012. Postseason values for each year are from the first postseason calibration following the fishing year. The difference between LC and PreALC represents the consequences of the management system employed in the year; the difference in PreALC and PostALC represents consequences of the forecast procedures and data used in forecasting the PreALC by the PSC Chinook Model. The difference in LC and PostALC captures the effects of both processes.

	SEAK			NBC			WCVI		
Year	LC–PreALC	PreALC–PostALC	LC–PostALC	LC–PreALC	PreALC–PostALC	LC–PostALC	LC–PreALC	PreALC–PostALC	LC–PostALC
2009	8,867	42,800	51,667	-33,530	3,900	-29,630	16,817	16,500	33,317
2010	7,555	6,000	13,555	-15,487	-8,300	-23,787	-4,653	1,400	-3,253
2011	-2,772	11,500	8,728	-59,740	-4,400	-64,140	7,432	62,000	69,432
2012	-25,785	61,700	35,915	-53,293	24,100	-29,193	1,168	19,500	20,668

ISBM Indices

For ISBM fisheries, the 2009 Agreement specifies that Canada and the U.S. will reduce base period exploitation rates on specified stocks by 36.5% and 40%, equivalent to ISBM indices of 63.5% and 60% percent, respectively. This requirement is referred to as the general obligation and does not apply to stocks that achieve their CTC agreed escapement goal. The 2009 Agreement also specifies that for those stocks in which the general obligation is insufficient to meet the escapement goal, the Party in whose waters the stock originates shall further constrain its fisheries to an extent that is not greater than the average ISBM exploitation rate which occurred in the years 1991–1996 (Paragraph 8 (c)). This requirement is referred to as the additional obligation.

Postseason ISBM Indices for 2011 and 2012

Postseason ISBM indices were calculated for all stocks for 2011, and for Canadian stocks in the Canadian ISBM fishery for 2012. For 2011, six of the seven Canadian ISBM indices that could be calculated from CWT data were reduced more than required under the Agreement (Table 5). Only the WCVI ISBM index (0.650) exceeded the general obligation (0.635). Since there is no CTC-agreed escapement goal for this stock aggregate, the general obligation applies. For 2012, three of the four Canadian ISBM indices that could be calculated from CWT data were reduced more than required under the Agreement, and only the WCVI ISBM index (0.738) exceeded the general obligation (Table 3.12).

Three of the 12 U.S. ISBM indices for 2011 were reduced more than required under the 2009 Agreement. The other nine U.S. CWT-based ISBM indices exceeded either the general obligation or the additional obligation (Table 6). Seven of these stocks have CTC-agreed escapement goals and all met or exceeded their respective escapement goals, and thus are exempted from the general obligation. Nooksack and Grays Harbor stocks, both without agreed escapement goals, exceeded the general obligation. Since there are no CTC-agreed escapement goal for these stocks, the general obligation applies.

Table 5.- ISBM indices based on 2011 and 2013 PSC Chinook Model, 2011 CWT analysis, and the 2013 indices predicted from the 2013 PSC Chinook Model, for the stock groups applicable to all British Columbia ISBM fisheries as listed in Attachment IV of the Treaty.

Stock Group	Escapement Indicator Stock	2011 Model Indices for 2011	2013 Model Indices for 2011	CWT Indices for 2011	2013 Model Indices for 2013
Lower Strait of Georgia	Cowichan[1]	0.367	0.227[2]	0.147[3]	0.362[2]
	Nanaimo	NA		NA[4,5]	
Fraser Late	Harrison River[1]	0.193	0.261	0.092[6]	0.286
North Puget Sound Natural Springs	Nooksack	0.732	0.208	0.014	0.273
	Skagit	0.731	0.208	NA	0.273
Upper Strait of Georgia	Klinaklini, Kakweikan, Wakeman, Kingcome, Nimpkish	0.578	0.165	0.032	0.649
Fraser Early (Spring and Summers)	Upper Fraser, Mid Fraser, Thompson	0.222	0.110	NA	0.238
West Coast Vancouver Island Falls	WCVI (Artlish, Burman, Kauok, Tahsis, Tashish, Marble)	0.491	0.778	0.650	0.227
Puget Sound Natural Summer/Falls	Skagit	0.745	0.174	NA	0.429
	Stillaguamish	0.793	0.247	0.246	0.561
	Snohomish	0.744	0.175	NA	0.423
	Lake Washington	0.752	0.225	NA	0.419
	Green River	0.756	0.225	0.300	0.419
North/Central B.C.	Yakoun, Nass, Skeena, Area 8	0.598	0.163	NA	0.496

[1] Stock or stock group with a CTC-agreed escapement goal.

[2] Although model-based indices were previously calculated separately for Cowichan and Nanaimo, these did not adequately represent impacts on either Lower Strait of Georgia stock because the model-based data represent an aggregate of the two stocks, and methods do not currently exist to correctly disaggregate these data for calculation of the ISBM values. Until such methods are developed, a single index value only will be reported representing the aggregate.

[3] An inconsistency was discovered between the approaches used to calculate the model-based and CWT-based indices. The former included harvest rates for terminal sport while the latter did not. Terminal sport harvest rates are now included in the calculation of both indices. Further review is yet required to determine whether the base period terminal sport harvest rates obtained from analyses of Big Qualicum CWT recoveries adequately represent impacts that would have occurred on Cowichan Chinook.

[4] Not available (NA) because of insufficient data (lack of stock-specific tag codes, base period CWT recoveries, etc.).

[5] Several problems have been identified in the approach previously used to calculate the CWT-based indices for Nanaimo Chinook. Until these problems are resolved, indices for this stock will not be reported.

[6] The terminal sport harvest rates for Chilliwack Hatchery Chinook, the indicator stock, were removed from the calculation for the Harrison River naturals because sport harvest has been essentially zero on the natural population.

Table 6.- ISBM indices based on 2011 and 2013 PSC Chinook Model, 2011 CWT analysis, and the 2013 indices predicted from the 2013 PSC Chinook Model, for the stock groups applicable to all Southern U.S. fisheries as listed in Attachment V of the Treaty.

Stock Group	Escapement Indicator Stock	2011 Model Indices for 2011	2013 Model Indices for 2011	CWT Indices for 2011	2013 Model Indices for 2013
Washington Coastal Fall Naturals	Hoko	0.419	1.505	NA[1]	0.608
	Grays Harbor	0.549	0.765	0.923	0.547
	Queets[2]	0.327	0.565	NA	0.532
	Hoh[2]	0.760	0.437	2.003	0.802
	Quillayute[2]	1.058	1.469	NA	1.442
Columbia River Falls	Upriver Brights[2]	0.841	1.129	2.862	0.971
	Deschutes[2]	1.044	0.687	0.798	0.718
	Lewis[2]	0.426	0.760	0.432	0.538
Puget Sound Natural Summer/Falls	Skagit	0.789	NC[3]	NA	1.015
	Stillaguamish	0.169	NC	0.195	0.213
	Snohomish	0.211	NC	NA	0.231
	Lake Washington	0.387	NC	NA	0.404
	Green River	0.236	NC	0.439	0.331
Fraser Late	Harrison River[2]	0.497	0.542	NA	0.887
Columbia R Summers	Mid-Columbia Summers[2]	1.398	1.795	5.376	1.571
Far North Migrating Oregon Coastal Falls	Nehalem[2]	2.146	1.376	1.210	1.475
	Siletz[2]	0.643	1.105	1.068	0.679
	Siuslaw[2]	1.427	1.240	1.108	1.443
North Puget Sound Natural Springs	Nooksack	0.484	NC	0.741	0.330
	Skagit	0.271	NC	NA	0.337

[1] Not available (NA) because of insufficient data (lack of stock-specific tag codes, base period CWT recoveries, etc.).

[2] Stock with a CTC-agreed escapement goal.

[3] Not able to calculate (NC) from 2013 Fisheries Regulation Assessment Model harvest projections.

Preseason ISBM Indices for 2013

Of the 13 ISBM indices for Canada, only the index for Upper Strait of Georgia was predicted to exceed the general obligation of 0.635 for Canadian ISBM fisheries in 2013 (Table 5). Since there is no CTC-agreed escapement goal for this stock aggregate, the general obligation would apply. Among the stocks with CTC-agreed escapement goals, only the ISBM index for Harrison was predicted to exceed the additional obligation of 0.250.

Eleven of the 20 U.S. ISBM indices are predicted to be above the general obligation of 0.600 or the additional obligation (Table 6). Where relevant, all of the corresponding stocks except Fraser Late are expected to meet their CTC-agreed escapement goals.

Coded Wire Tag Improvement Activities

A summary of the Coded Wire Tag Improvement Program (CWTIP) for 2012 is presented in Chapter 5. The goal of the CWTIP is to improve CWT-based estimates used for management of Chinook salmon stocks in the geographic area covered by the PST. The 2012 season represents the fourth year of the program for Canada and the third year of the program for the U.S. The Chapter 5 summary includes, over the years of the program to date, a summary of spending, performance and benefits of the CWTIP, as well as emerging and long-term issues facing the coastwide CWT program.

In 2012, the Commission approved $3 million in funding for projects. Summaries for individual projects are provided in Appendix L. Canadian projects included increased tagging for 12 CWT indicator stocks; increased escapement sampling for six stocks; program elements necessary for the Atnarko indicator stock in Central British Columbia fishing area; a substantial investment in upgrading the CWT reporting system; and improvements in sport and First Nations sampling and recovery rates, coordination and infrastructure (see Appendix Table L1). U.S.-funded projects included tagging and sampling for two CWT indicator stocks (the Stikine and Elk river stocks), CWT processing equipment for the Makah Tribe, CWT equipment (improved hand-held wands) for electronic sampling in Washington and Oregon, hand-held wands in SEAK to reduce costs of processing CWTs in commercial fisheries, estimation of CWTs in terminal sport fisheries in Puget Sound, sampling of ocean troll and sport fisheries in Washington and Oregon, data reporting improvements for the SEAK spring troll fishery, and improving the timeliness of CWT reporting in Washington (see Appendix Table M2).

B. JOINT CHUM TECHNICAL COMMITTEE

2011 POST SEASON SUMMARY REPORT
TCCHUM (14)-1 – January 2014

This Pacific Salmon Commission (PSC) Joint Chum Technical Committee report presents the information on Chum salmon stocks and fisheries in southern British Columbia (B.C.) and Washington (WA) for the year 2011 to address the specific provisions and requirements of Chapter 6, Annex IV (Chum Annex) of the Pacific Salmon Treaty (PST or Treaty) (Appendix A). The Treaty between the governments of Canada and the United States of America (U.S.) concerning Pacific salmon is designed to facilitate co-operation in the management, research and enhancement of Pacific salmon stocks. The Chum Annex requires that Canada and the U.S. maintain a Joint Chum Technical Committee reporting to the Southern Panel and the Commission and that certain fisheries for Chum salmon in southern B.C. and WA be managed in a specified manner (Appendix A). Certain fisheries of each country, while not specifically mentioned in the PST, are known to harvest Chum salmon originating in the other country.

This report presents various aspects of Chum salmon found in B.C. waters between Vancouver Island and the mainland, off the west coast of Vancouver Island, and in WA waters. This report also discusses the management actions of Canada and the U.S. in relation to the PST requirements for Chum salmon and provides a summary of the last 10 years of catch and escapement information for Chum salmon of concern to the Treaty. Returns in 2011 were average in B.C. to slightly below contemporary 10-yr average in WA. Fish sizes were notably smaller than average in Canadian fisheries and in several spawning areas.

The Chum Technical committee began developing proposals to address components of the strategic plan outlined in the 2010 report. The components included collecting and exchanging tissue samples from boundary area populations for the Chum salmon genetic baseline, organizing a series of meetings to present the Chum Technical committee vision to agencies, managers and samplers, as well as continuing mixed stock fishery sampling in key regions. The committee began an inventory of Chum salmon GSI tissue collections and created a map linked to this database.

C. JOINT COHO TECHNICAL COMMITTEE

No reports were finalized for publication during this reporting period.

D. JOINT NORTHERN BOUNDARY TECHNICAL COMMITTEE

U.S./CANADA NORTHERN BOUNDARY AREA 2012 SALMON FISHERIES MANAGEMENT REPORT AND 2013 PRELIMINARY EXPECTATIONS
TCNB (13)-1 – September 2013

This report reviews:

1) catch, effort, and management actions in the 2012 Northern Boundary Area troll and net fisheries of southern Southeast Alaska Districts 101 to 108 and northern British Columbia Areas 1, 3, 4, and 5;

2) management performance relative to Treaty requirements for pink salmon;

3) preliminary expectations and fishing plans for 2013.

2012 Fisheries

The southern Southeast Alaska pink salmon harvest was 18.6 million (Districts 1-8, all harvest codes, all gear), which was below the 10-year average of 20.2 million. For all of Southeast Alaska, excluding the Yakutat area, the pink salmon harvest was 21.3 million, which was above the preseason forecast of 17 million but within the 10-29 million 80% confidence interval.

The total 2012 Southeast Alaska pink salmon escapement index of 11.0 million index fish ranked 18th since 1960, and was 75% of the recent 10-year average of 14.7 million. Biological escapement goals are in place for three sub-regions in Southeast Alaska and escapement goals were met in two of the three sub-regions in 2012 (Table 5). On a finer scale, escapements met or exceeded management targets for 10 of 15 districts in the region and for 31 of the 46 pink salmon stock groups in Southeast Alaska. Pink salmon returns were generally weak throughout much of the Northern Southeast Inside sub-region in 2012. The Southern Southeast sub-region includes all of the area from Sumner Strait south to Dixon Entrance (Districts 101–108). The pink salmon harvest of 18.6 million in the Southern Southeast sub-region was near the recent 10-year average of 20.2 million fish. The escapement index value of 6.5 million was well within the escapement goal range of 3.0 to 8.0 million index fish.

Sockeye salmon catches in traditional Alaska boundary area gillnet and purse seine fisheries, including treaty fisheries, were below average in all areas, except District 102 seine where catches were above average. The Hugh Smith Lake adult sockeye salmon escapement was 13,400, which was within the optimal escapement goal range of 8,000 to 18,000 adult sockeye salmon. The expanded peak survey count of 57,000 McDonald Lake sockeye salmon was slightly above the lower bound of the 55,000 to 120,000 sustainable escapement goal range.

Alaska boundary area gillnet and purse seine summer chum salmon catches were above average. The southern Southeast Alaska wild-stock escapement index, which has a sustainable escapement goal of an aggregate 54,000 index spawners to 13 summer run chum salmon streams, was 144,000, making 2012 the sixth highest in the time series.

Gillnet and purse seine coho salmon catches in the Alaska boundary area were above average and coho salmon escapement counts and estimates were within or above goal. The combined peak count of 11,950 spawners in the 14 surveyed streams in the Ketchikan survey index was above the goal of 4,250-8,500 spawners. The total escapement of 1,908 spawners to Hugh Smith Lake was well-above the biological escapement goal range of 500-1,600 fish.

In Canadian Area 1 there are no longer commercial net interception fisheries on passing salmon stocks. No pink or chum surpluses were identified in-season therefore there were no terminal gillnet or seine fisheries in

2012. Catches in the Area 1 troll fishery were near the previous decadal average for sockeye (1,518 vs. 1,487), coho (145,676 vs. 103,690) and pink (57,013 vs. 62,588).

Sockeye catches were small in Area 3 with gillnets catching 92,118 compared to the previous decadal average of 255,093 and seines catching 5,366 compared to the previous decadal average of 70,724. Pink catches were also well below average in Area 3 with gillnets catching 58,528 compared to the previous decadal average of 212,947 and seines catching 339,239 compared to the previous decadal average of 1,238,669.

Sockeye catches were below average in Area 4 with gillnets catching 399,892 compared to the previous decadal average of 533,614 and seines catching 123,340 compared to the previous decadal average of 183,511. Pink catches were also well below average in Area 4 with gillnets catching 24,214 compared to the previous decadal average of 117,659 and seines catching 10,251 compared to the previous decadal average of 382,670.

Catch and effort in Area 5 was well below average for gillnets and no seine fishery occurred in Area 5 in 2012.

The preliminary Nass sockeye total return estimate of 477,000 was slightly above the pre-season forecast of 446,000 however, the Skeena sockeye preliminary total return estimate of 2.4 million was substantially higher than the 50% probability level pre-season sibling forecast of 1.4 million but within the 10% probability level of 2.7 million. Pink returns throughout the North Coast were low as expected. Chum escapements continued to be poor and retention of chum was not permitted by gillnet or seine in Areas 4 and 5. Chum retention was permitted in a small portion of Area 3 around Wales Island where and when hatchery origin chum were believed to be most prevalent.

Management Performance

Pacific Salmon Treaty based harvest sharing agreements were renewed in 2009 for the Northern Boundary area fisheries – Alaska District 104 purse seine, Alaska District 101 drift gillnet, Canadian Area 3 net, and Canadian Area 1 troll. The agreements are "abundance based" where the allowable harvest is a percentage of the Annual Allowable Harvest (AAH). The AAH is the total return of applicable stocks minus the lesser of: 1) the actual escapement, or 2) the escapement goal. Catches over or under the AAH are summed over the period of the agreement to allow for annual variation.

The run size of Alaskan pink salmon returning to Districts 101-103 determines the allowable harvests of these stocks in Canada's Area 3 (1-4) net and Area 1 troll fisheries.

In Alaska's District 104 purse seine fishery, the Nass and Skeena sockeye salmon run size determines the AAH of these stocks prior to Statistical Week 31. In the District 104 purse seine fishery the agreement specifies a harvest, from the beginning of the season through Statistical Week 30, of 2.45% of the combined AAH of both the Nass and Skeena River runs. The fishery opens the first Sunday in July; in 2012 the initial opening was July 1 (Week 27). The 2012 pre-Week 31 fishing plan for District 104 was based on returns of local Alaskan stocks as well as the Canadian Department of Fisheries and Oceans (DFO) preseason forecast returns of about 446,000 Nass River sockeye salmon and about 1.4 million Skeena River sockeye salmon. The preseason forecasts result in a total projected return of 1.84 million Nass and Skeena sockeye salmon which, minus an escapement goal of 1.1 million, would result in an AAH of about 746,000. Using this forecast, the 2012 pre-week 31 AAH was approximately 18,300 Nass and Skeena sockeye salmon.

In Alaska's District 101 gillnet fishery, the AAH is based solely on the run size of Nass River sockeye salmon. The AAH is calculated as the total run of Nass sockeye salmon minus either the escapement requirement of 200,000 or the actual in-river escapement, whichever is less. In the District 101 (Tree Point) drift gillnet fishery, the agreement specifies a harvest of 13.8 percent of the AAH of the Nass River sockeye salmon run. The return of Nass sockeye salmon was forecast at 446,000 in 2012 which, minus an escapement goal of 200,000, would result in an AAH of about 246,000. Using this forecast the 2012 allowable harvest in the District 101 gillnet fishery was about 34,000 Nass River sockeye salmon.

The District 101 drift gillnet fishery opens by regulation on the third Sunday in June which was June 17 (week 25) in 2012. During the early weeks of the fishery, management is based on the run strength of Alaska wild stock chum and sockeye salmon and on the strength of the Nass River sockeye salmon. Beginning in the third week of July, when pink salmon stocks begin to enter the fishery in large numbers, management emphasis shifts by regulation to that species. By regulation, the District 101 Pink Salmon Management Plan (PSMP) sets gillnet fishing time in this district in relation to the District 101 purse seine fishing time when both fleets are concurrently harvesting the same pink salmon stocks.

For the year 2012, Canada was to manage the 3-1 to 3-4 net fishery to achieve an annual catch share of 2.49 percent of the annual allowable harvest (AAH) of Alaskan Districts 101, 102 and 103 pink salmon. With a Total Return of approximately 31.10 million pink, the Alaskan Districts 101, 102 and 103 AAH was 20.35 million pink. The resulting Area 3-1 to 3-4 Canadian commercial net total allowable catch of this AAH was approximately 0.51 million pink of Alaskan Districts 101, 102 and 103 origin.

In the Canadian northern boundary area, pink salmon returns were anticipated to be poor for both Area 3 and Area 4 based on brood year escapements. Returns to Area 3 were slightly above expectations but Area 4 streams were at or below expectations in 2012. The 2012 Canadian pink salmon catch in Sub-areas 3-1 to 3-4 was 118,164 and a preliminary estimate of the Alaska stock component of this catch is estimated to be 96,658, or 0.47 % of the AAH, well below the annex agreement of 2.49 %.

For the year 2012, Canada was to manage the Area 1 troll fishery to achieve an annual catch share of 2.57 percent of the annual allowable harvest (AAH) of Alaskan Districts 101, 102 and 103 pink salmon. The resulting Area 1 Canadian commercial troll total allowable catch of this AAH was approximately 523,056 pink of Alaskan Districts 101, 102 and 103 origin.

The Canadian commercial troll fishery targeting pink salmon was open in the northern portion of Area 1 (Dixon Entrance AB Line) from July 1st to September 30th. Pink retention was also permitted during the Chinook directed fishery in parts of Area 1 which was open from June 21st to September 30th with closed periods from July 16th to July 19th and August 12th to September 3rd. Area 1 pink salmon directed effort was very minimal and the fishery harvested a total of 57,013 pink salmon, with an estimated 52,143 being of Alaskan origin. This equates to 0.26 % of the Alaskan District 101, 102 and 103 pink AAH, well below the annex agreement of 2.57%.

2013 Forecasts

The Southeast Alaska pink salmon harvest in 2013 is predicted to be in the excellent range, with a point estimate of 54 million fish (80% confidence interval: 42–67 million fish). An actual harvest of 54 million pink salmon would be well above the recent 10-year average of 37 million pink salmon, but is close to the average harvest over the past five odd years. The 2013 forecast was produced in two steps: 1) a forecast of the trend in the harvest, and 2) the forecast trend adjusted using 2012 juvenile pink salmon abundance data provided by the NOAA Fisheries, Alaska Fisheries Science Center, Auke Bay Laboratories. Formal forecasts are not made for species other than pink salmon in Southeast Alaska.

The 2013 Nass sockeye total return is estimated to be 452,000 (with a 25% probability of the return exceeding 557,000 and a 75% probability the return will exceed 371,000) providing only modest marine net and Nisga'a in-river commercial opportunities. For the Skeena, the sibling model forecast predicts a 50% probability of approximately 0.7 million sockeye returning in 2013, with a 25% probability of the return exceeding 1.0 million and a 75% probability the return will exceed 0.5 million. The Nass and Skeena area pink return predictions are very poor based on brood year escapements. As a result, directed Skeena sockeye and Skeena/Nass pink salmon harvest opportunities are unlikely in 2013.

U.S./CANADA NORTHERN BOUNDARY AREA 2013 SALMON FISHERIES MANAGEMENT REPORT AND 2014 PRELIMINARY EXPECTATIONS

TCNB (14)-1 – February 2014

This report reviews:

1) catch, effort, and management actions in the 2013 Northern Boundary Area troll and net fisheries of southern Southeast Alaska Districts 101 to 108 and northern British Columbia Areas 1, 3, 4, and 5;

2) management performance relative to Treaty requirements for pink salmon;

3) preliminary expectations and fishing plans for 2014.

2013 Fisheries

Pink salmon returns were exceptionally strong throughout much of the region in 2013. The southern Southeast Alaska pink salmon harvest was 53.5 million (Districts 1-8, all harvest codes, all gear), which was 271% of the ten-year average of 19.8 million and the second highest harvest since 1960. For all of Southeast Alaska, excluding the Yakutat area, the pink salmon harvest was a record 95 million fish, which was well above the preseason forecast point estimate of 54 million and above the 42-67 million 80% confidence interval range of the forecast.

The total 2013 Southeast Alaska pink salmon escapement index of 25.2 million index fish was the 2nd largest since 1960, and was close to doubling the recent 10-year average of 14.2 million. Biological escapement goals are in place for three subregions in Southeast Alaska and escapement goals were met or exceeded for all three subregions in 2013. On a finer scale, escapements met or exceeded management targets for all 15 districts in the region and for 45 of the 46 pink salmon stock groups in Southeast Alaska. The Southern Southeast subregion includes all of the area from Sumner Strait south to Dixon Entrance (Districts 101–108). The escapement index value of 14.4 million was well above the escapement goal range of 3.0 to 8.0 million index fish and was the largest index value since 1960.

Sockeye salmon catches in traditional Alaska boundary area gillnet and purse seine fisheries, including treaty fisheries, were below the 1985–2012 average in all areas except District 102 purse seine, where the total catch was near average. The Hugh Smith Lake adult sockeye salmon escapement was 5,950, which was below the optimal escapement goal range of 8,000 to 18,000 adult sockeye salmon. The expanded peak survey count of 15,400 McDonald Lake sockeye salmon was well below the lower bound of the 55,000 to 120,000 sustainable escapement goal range.

Alaska boundary area drift gillnet and purse seine summer chum salmon catches were below average in most boundary area fisheries. The Southern Southeast chum salmon stock group is composed of an aggregate of 13 summer-run chum salmon streams on the inner islands and mainland of southern Southeast Alaska, from Sumner Strait south to Dixon entrance, with a sustainable escapement goal of 54,000 index spawners (based on the aggregate peak survey to all 13 streams). The escapement index of 84,000 in 2013 was the third consecutive index value above goal.

Gillnet and purse seine coho salmon catches in the Alaska boundary area were above average and coho salmon escapement counts and estimates were above goal. The combined peak count of 9,211 coho salmon in the 14 surveyed streams in the Ketchikan survey index was above the escapement goal of 4,250-8,500 fish. The total escapement of 3,048 coho salmon to Hugh Smith Lake was well above the biological escapement goal range of 500-1,600 fish.

In Canadian Area 1 there are no longer commercial net interception fisheries on passing salmon stocks. No pink or chum surpluses were identified in-season therefore there were no terminal gillnet or seine fisheries in

2013. Catches in the Area 1/101 troll fishery were above the previous decadal average for coho (224,647 vs. 103,690) and pink (84,216 vs. 62,588).

Sockeye catches were well below average in Area 3 with gillnets catching 113,836 compared to the previous decadal average of 255,093 and seines catching 6,927 compared to the previous decadal average of 70,724. Pink catches were well above average in Area 3 with gillnets catching 293,282 compared to the previous decadal average of 212,947 and seines catching 2,210,279 compared to the previous decadal average of 1,238,669.

No sockeye or pink directed commercial fisheries occurred in Area 4 due to the poor return of Skeena sockeye. Two commercial gillnet openings targeting Skeena Chinook caught 997 Chinook.

Commercial fisheries were closed in Area 5 for the entire season.

The preliminary sockeye escapement estimate to the Nass was 210,263 and was somewhat higher than the escapement target of 200,000. The Skeena sockeye reconstructed net escapement estimate of 411,000 was much lower than the 2000 to 2009 average of 1.0 million and below the target escapement of 900,000. Pink returns throughout the North Coast were much higher than expected and exceeded escapement goals in most cases. Chum escapements continued to be poor and management measures to reduce impacts to wild chum continued in 2013.

Management Performance

Pacific Salmon Treaty based harvest sharing agreements were renewed in 2009 for the Northern Boundary area fisheries—Alaska District 104 purse seine, Alaska District 101 drift gillnet, Canadian Area 3 net, and Canadian Area 1 troll. The agreements are "abundance based" where the allowable harvest is a percentage of the Annual Allowable Harvest (AAH). The AAH is the total return of applicable stocks minus the lesser of: 1) the actual escapement, or 2) the escapement goal. Catches over or under the AAH are summed over the period of the agreement to allow for annual variation.

In Alaska's District 104 purse seine fishery, the Nass and Skeena sockeye salmon run size determines the AAH of these stocks prior to Statistical Week 31. In Alaska's District 101 gillnet fishery, the AAH is based solely on the run size of Nass River sockeye salmon. The run size of Alaskan pink salmon returning to Districts 101-103 determines the allowable harvests of these stocks in Canada's Area 3 (1-4) net and Area 1 troll fisheries.

In the District 104 purse seine fishery the agreement specifies a harvest, from the beginning of the season through Statistical Week 30, of 2.45% of the combined AAH of both the Nass and Skeena River runs. The fishery opens the first Sunday in July and in 2013 the initial opening was July 7 (Week 28). The 2013 pre-Week 31 fishing plan for District 104 was based on returns of local Alaskan stocks as well as the Canadian Department of Fisheries and Oceans (DFO) preseason forecast returns of approximately 452,000 Nass River sockeye salmon and 700,000 Skeena River sockeye salmon. The preseason forecasts resulted in a total projected return of 1.15 million Nass and Skeena sockeye salmon which, minus an escapement goal of 1.10 million, produced an AAH of approximately 52,000 fish. Using this forecast, the 2013 pre-week 31 AAH was approximately 1,300 Nass and Skeena sockeye salmon.

In the District 101 (Tree Point) drift gillnet fishery, the AAH is calculated as the total run of Nass sockeye salmon minus either the escapement requirement of 200,000 or the actual in-river escapement, whichever is less. The agreement specifies a harvest of 13.8 percent of the AAH of the Nass River sockeye salmon run. The return of Nass sockeye salmon was forecast at 452,000 in 2013 which, minus an escapement goal of 200,000, would result in an AAH of about 252,000. Using this forecast the 2013 allowable harvest in the District 101 drift gillnet fishery was approximately 35,000 Nass River sockeye salmon.

The District 101 drift gillnet fishery opens by regulation on the third Sunday in June, which was June 16 (week 25) in 2013. During the early weeks of the fishery, management is based on the run strength of Alaska wild stock chum and sockeye salmon and on the strength of the Nass River sockeye salmon. Beginning in the third week of July, when pink salmon stocks begin to enter the fishery in large numbers, management emphasis shifts by regulation to that species. By regulation, the District 101 Pink Salmon Management Plan (PSMP) sets gillnet fishing time in this district in relation to the District 101 purse seine fishing time when both fleets are concurrently harvesting the same pink salmon stocks.

For the year 2013, Canada was to manage the Area 3-1 to 3-4 net fishery to achieve an annual catch share of 2.49 % of the annual allowable harvest (AAH) of Alaskan Districts 101, 102 and 103 pink salmon. With a Total Return of approximately 80.81 million pinks, the Alaskan Districts 101, 102 and 103 AAH was 70.06 million pinks. The resulting Area 3-1 to 3-4 Canadian commercial net total allowable catch of this AAH was approximately 1.74 million pinks of Alaskan Districts 101, 102 and 103 origin.

In the Canadian northern boundary area, pink salmon returns were anticipated to be very poor for both Area 3 and Area 4, based on brood year return strength. Actual returns to Area 3 and 4 streams were well above average. The 2013 preliminary Canadian pink salmon catch in Sub-areas 3-1 to 3-4 was 1.25 million and the Alaska stock component of this catch is estimated to be 1.15 million, or 1.64 % of the AAH, well below the annex agreement of 2.49 %.

For the year 2013, Canada was to manage the Area 1 troll fishery to achieve an annual catch share of 2.57 % of the annual allowable harvest (AAH) of Alaskan Districts 101, 102 and 103 pink salmon. The resulting Area 1 Canadian commercial troll total allowable catch of this AAH was approximately 1.80 million pinks of Alaskan Districts 101, 102 and 103 origin.

The Canadian commercial troll fishery targeting pink salmon was open in the northern portion of Area 1 (Dixon Entrance AB Line) from July 1st to September 30th. Pink retention was also permitted during the Chinook directed fishery in parts of Area 1 which opened from June 21st to July 7th. Area 1 pink salmon directed effort was very minimal and the fishery harvested a total of 84,216 pink salmon, with an estimated 80,590 being of Alaskan origin. This equates to 0.12 % of the Alaskan District 101, 102 and 103 pink AAH, well below the annex agreement of 2.57%.

2014 Forecasts

The Southeast Alaska pink salmon harvest in 2014 is predicted to be in the average range, with a point estimate of 22 million fish (80% confidence interval: 8–36 million fish). An actual harvest of 22 million pink salmon would be well below the recent 10-year average of 41 million pink salmon, but is close to the average harvest over the past five even years. The 2014 forecast was produced in two steps: 1) a forecast of the trend in the harvest, and 2) the forecast trend adjusted using 2012 juvenile pink salmon abundance data provided by the NOAA Fisheries, Alaska Fisheries Science Center, Auke Bay Laboratories. Formal forecasts are not made for species other than pink salmon in Southeast Alaska.

A nearly average Nass sockeye total return of 642,000 (with a 10% probability of the return exceeding 972,000 and a 90% probability the return will exceed 452,000) is expected. The sibling model forecast predicts a 50% probability of approximately 2.3 million sockeye returning to the Skeena in 2014 with a 10% probability of the return exceeding 4.7 million and a 90% probability the return will exceed 1.1 million. Average to below average pink returns are anticipated to Area 3, 4 and 5 based on brood year escapements.

E. JOINT TRANSBOUNDARY TECHNICAL COMMITTEE

ESTIMATES OF TRANSBOUNDARY RIVER SALMON PRODUCTIONS, HARVEST AND ESCAPEMENT AND A REVIEW OF JOINT ENHANCEMENT ACTIVITIES IN 2001.

TCTR (13)-1 – July 2013

Final postseason estimates of harvest and escapements of Pacific salmon returning to the transboundary Stikine, Taku, and Alsek Rivers for 2001 are presented and compared with historical patterns. Average, unless stated differently, refers to the 1991-2000 averages. Relevant information pertaining to the management of appropriate U.S. and Canadian fisheries is presented and the use of inseason management models is discussed. Final results from transboundary river sockeye salmon, Oncorhynchus nerka, enhancement projects are also reviewed.

Stikine

The 2001 Stikine sockeye run is estimated at 127,300 fish, of which approximately 53,000 fish were harvested in various fisheries including test fisheries, 50 fish were taken at the Tahltan Lake weir for otolith samples, and 2,400 Tahltan fish were used for broodstock. An estimated 75,000 Stikine fish escaped to spawn including 19,200 fish which migrated to the Tuya block and were not harvested. The catch and the run were below averages. The Tahltan escapement was below goal but the highest since 1996. The estimated U.S. commercial catch of Stikine sockeye salmon in Districts 106 and 108 was 23,500 fish and the Canadian inriver commercial, aboriginal, and ESSR fishery catches were 19,900, 5,200, and 400 fish, respectively. The inriver test fishery harvested 3,300 sockeye salmon and there was no marine test fishery in 2001. The postseason estimate of 127,300 sockeye salmon was above the preseason forecast of 113,000 fish. The Stikine Management Model over forecast the entire run throughout the season but correctly forecast little or no allowable catch on the Tahltan stock during all but two weeks. Weekly inseason model forecasts ranged from 155,000 to 219,000 sockeye salmon; the final inseason model prediction was 164,000 fish with a total allowable catch (TAC) of 80,000 fish. Based on the inseason model estimates, both Parties harvested below their 50% target of the TAC (40,000 Stikine sockeye salmon). However, using the final postseason estimate of run size and TAC, the U.S. harvested below its TAC and Canada harvested 19% above its TAC. The broodstock collection and otolith sampling removed 2,400 and 50 sockeye salmon, respectively; from the escapement to Tahltan Lake leaving a spawning escapement of 12,400 fish, falling below the spawning escapement goal of 20,000 fish. The estimated spawning escapement of 40,900 mainstem Stikine sockeye salmon was within the objective of 20,000 to 40,000 fish for this stock group.

The Chinook catch in Canadian commercial and aboriginal fisheries in the Stikine River was 1,700 large fish and 100 non large; below the respective averages. An additional 1,800 large and 60 non large Chinook salmon were taken in the Canadian inriver test fishery. The U.S. marine catch of Chinook salmon (all stocks) in the District 106 and 108 mixed stock gillnet fisheries was 1,100 fish and was below average. The Chinook spawning escapement of 10,000 large adults through the Little Tahltan River weir in 2001 was above the recently revised joint U.S./Canada escapement goal range 2,700 to 5,300 fish, was above average. The total postseason Stikine Chinook escapement estimate from a mark recapture study was 62,500 fish; above the goal of 14,000 to 28,000 fish.

As with Chinook salmon, the U.S. marine harvest of Stikine coho salmon is unknown since there is no stock identification program for this species. Mixed stock coho catch in Districts 106 was 188,500 and was average and the District 108 catch was 10,700 fish and was below average. Alaskan hatchery fish comprised approximately 35% (70,000 fish) of the coho harvest from the two districts. The Canadian inriver coho catch of 233 fish was below average. DFO used test fishery coho and sockeye CPUE to estimate coho salmon—test fishery coho CPUE indicated the inriver coho run was approximately 36% of the inriver sockeye run or roughly 44,000 fish, within the interim escapement goal range of 30,000 to 50,000 fish. The mark-recapture estimate indicated twice this escapement or 88,000 fish (range 61,000 to 126,000 fish). Aerial surveys of coho spawning index sites were above average, which also indicated an above average inriver run.

Taku

The final postseason estimate of the 2001 Taku sockeye run is 400,700 fish, including an estimated catch of 256,000 fish and an above-border spawning escapement of 144,000 sockeye salmon. The run size was above average, the total catch was a record, and the escapement was roughly twice escapement goal range of 71,000 to 80,000 fish. An estimated 208,000 Taku sockeye salmon were harvested in the District 111 commercial fishery, above average, and an estimated 1,500 sockeye salmon were harvested in the U.S. inriver personal use fishery. Canadian inriver commercial catch was 48,000 and aboriginal fishery catch was 210 sockeye salmon. The Canadian commercial catch was above average. Since the escapement goal is expressed as a range, the resulting total allowable catch is also expressed as a range. In 2001, Canada harvested an estimated 22% to 15%, and the U.S. took 80% to 64% of the total allowable catch.

The catch of large Chinook salmon in the Canadian commercial fishery in the Taku River was 1,500 fish, which was below average; in addition, 118 non large Chinook salmon were caught. The Canadian aboriginal fishery in the Taku River harvested 125 large Chinook salmon. The Chinook catch in the District 111 mixed stock gillnet fishery was 1,700 fish, and was below average. Approximately 28% of the catch was estimated to be of Alaska hatchery origin. The aerial survey escapement index of 5,000 Chinook salmon counted in Taku River index areas was below average but within the recently revised index escapement goal range of 5,800 to 10,500 fish. The above-border mark-recapture estimate of 44,700 Chinook salmon is within the escapement goal range of 30,000 to 55,000 fish.

The estimated above border run of Taku coho salmon in 2001 is 107,000 fish, which was above the average. The Canadian inriver commercial catch included 3,000 coho salmon, which was below average. After upriver Canadian catches are subtracted from the inriver run, the above-border-spawning escapement is estimated at 104,000 coho salmon, which exceeds the minimum escapement goal of 38,000 fish. The U.S. harvest of 23,000 coho salmon in the District 111 mixed stock fishery was below average. Alaskan hatcheries contributed an estimated 7% of the District 111 harvest, or 1,600 fish.

The harvest of 123,000 pink salmon in District 111 was average. Pink salmon were not retained in the Canadian commercial inriver fishery in 2001. The escapement of pink salmon to the Taku River was likely below average as evidenced by the fish wheel catch and release of 9,100 pink salmon, which was below average.

The catch of chum salmon in the District 111 fishery was 237,000 fish; composed of 235,000 summer run fish (prior to mid-August) and 1,700 fall run fish. The catch of summer chum salmon, primarily Alaskan hatchery stocks, was below average. The catch of fall chum salmon, composed of wild Taku River and Port Snettisham stocks, was below average. As with pink salmon, there was non-retention of chum salmon in the Canadian inriver fishery and the reported catch was 0 fish in 2001. Although spawning escapement is not known the Canyon Island fish wheel catch of 250 chum salmon was below average.

Alsek

The Alsek sockeye harvest of 14,000 fish in the U.S. commercial fishery was below average. The Canadian inriver catch of 1,200 fish was below average. The low catches were the result restrictions and closures in the commercial, sport, and aboriginal fisheries due to conservation concerns. The Klukshu River weir count of 10,300 sockeye salmon was below average, but within the goal-range of 7,500 to 15,000 fish. The count of 900 early-run sockeye salmon (count through August 15) was below average, whereas the count of 9,400 late run fish was average.

The U.S. Dry Bay catch of 500 Chinook salmon was average. The combined Canadian sport and aboriginal fishery catch of 300 Chinook salmon was below average. The 1,800 Chinook salmon counted through the Klukshu River weir was below average. Of the total count, 1,700 Chinook salmon were estimated to have spawned, thus achieving the escapement goal range 0f 1,100 to 2,300. Aerial survey index counts of other spawning systems were above average for the Blanchard and Takhanne Rivers and below average for Goat Creek.

Current stock assessment programs prevent an accurate comparison of Alsek coho runs with historical runs. The U.S. Dry Bay catch of 2,900 coho salmon was below average, while the combined Canadian inriver aboriginal and sport fishery catch of 99 fish was below average. The operation of the Klukshu weir does not provide a complete enumeration of coho salmon into this system since it is removed before the run is over; however, it does provide an annual index. The count of 750 coho salmon was below average.

Enhancement

Eggs and milt were collected from the year 2001 sockeye escapements at Tahltan and Tatsamenie Lakes. For the fifth year in a row the 6.0 million egg-take goal was not achieved at Tahltan Lake due to low escapement. A total of 3.3 million eggs were collected at Tahltan Lake. At Tatsamenie Lake, 3.5 million eggs were collected for the hatchery and 0.8 million eggs were collected for the in- lake incubation project.

Outplants of 2000 brood-year sockeye fry in May and June 2001 included 1.9 million fry into Tahltan Lake, no fry into Tuya Lake, and 2.2 million fry into Tatsamenie Lake. Green-egg to planted-fry survivals were 77%, and 90% for these outplants, respectively. Survival to emergence was generally at, or above, expected levels with one pair of incubators lost to Infectious Hematopoietic Necrosis (IHN). Losses from IHN have occurred in the past at Snettisham Hatchery and are expected in sockeye salmon culture.

Outmigrant smolt sampling was conducted at Tahltan and Tatsamenie Lakes in 2001. Total emigration from Tahltan Lake was an estimated at 1,496,000 smolts with approximately 44% (654,000 outmigrants) from past fry plants. Sampling at Tuya Lake was conducted to estimate age and size composition of the outmigrants but the magnitude of the emigration was not estimated. Sample size at this location was limited due to logistics and timing. The Tatsamenie Lake smolt mark-recapture program estimated that 72,000 (95% CI: 54,000 – 89,000), smolts emigrated from the lake with planted fish contributing approximately 12% of the total (9,000 smolts).

The egg incubation and thermal-marking program was continued at Snettisham Hatchery in 2001. Snettisham hatchery is operated by DIPAC (Douglas Island Pink and Chum, Inc.), a private aquaculture organization in Juneau. A co-operative agreement between ADF&G and DIPAC provides for Snettisham hatchery to serve the needs of the joint TBR enhancement projects.

Adult sockeye otoliths were processed inseason by the ADF&G otolith lab to estimate the weekly contribution of fish from U.S./Canada TBR fry planting programs to the District 106, 108, and 111 gillnet fisheries and to Canadian commercial fisheries in the Stikine and Taku Rivers. Final contribution estimates of planted fish to Alaskan catches were 13,000 Stikine sockeye salmon to District 106 and 108 (8% of catch) and 9,000 Taku sockeye salmon to District 111 (4% of catch) Final estimates of contributions to Canadian fisheries included 10,000 sockeye salmon (38% of catch) to Stikine fisheries and 2,000 sockeye salmon to the Taku fisheries (4% of catch).

ESTIMATES OF TRANSBOUNDARY RIVER SALMON PRODUCTIONS, HARVEST AND ESCAPEMENT AND A REVIEW OF JOINT ENHANCEMENT ACTIVITIES IN 2002.

TCTR (13)-2 – July 2013

Final postseason estimates of catches and escapements of Pacific salmon returning to the transboundary Stikine, Taku, and Alsek Rivers for 2002 are presented and compared with historical patterns. Relevant information pertaining to the management of appropriate U.S. and Canadian fisheries is presented and the use of inseason management models is discussed. Results from transboundary river sockeye salmon Oncorhynchus nerka enhancement projects are also reviewed.

Stikine

Final postseason estimates of catches and escapements of Pacific salmon returning to the transboundary Stikine, Taku, and Alsek Rivers for 2002 are presented and compared with historical patterns. Relevant information pertaining to the management of appropriate U.S. and Canadian fisheries is presented and the use of inseason management models is discussed. Results from transboundary river sockeye salmon Oncorhynchus nerka enhancement projects are also reviewed.

Taku River

The postseason estimate of the 2002 Taku River sockeye salmon run is 253,200 fish, including an estimated catch of 149,200 fish and an above-border spawning escapement of 103,600 sockeye salmon. The run size was average and the escapement was above the escapement goal range of 71,000 to 80,000 fish. An estimated 116,700 Taku River sockeye salmon were harvested in the District 111 commercial fishery and an estimated 1,300 sockeye salmon were harvested in the U.S. inriver personal use fishery. District 111 commercial harvest was average. Canadian inriver commercial harvested 31,100 sockeye salmon and aboriginal fishery harvested 200 sockeye salmon. The Canadian commercial harvest was average. In 2002, Canada harvested an estimated 18%, and the U.S. took 66% of the TAC.

The harvest of large Chinook salmon in the Canadian commercial fishery in the Taku River was below average, 1,600 fish; in addition, 300 jack Chinook salmon were harvested, which was above average. The Canadian aboriginal fishery in the Taku River harvested 37 large Chinook salmon. The harvest of 1,800 Chinook salmon in the District 111 mixed stock gillnet fishery was below average, and 13% of the catch was estimated to be of Alaska hatchery origin. The escapement of 8,300 Chinook salmon counted in Taku River index areas was below average but within the recently revised index escapement goal range of 5,800 to 10,500 fish. The above-border mark-recapture estimate of 48,800 Chinook salmon is within the escapement goal range of 30,000 to 55,000 fish.

The estimated above border run of Taku River coho salmon in 2002 is 223,200 fish, which was above average. The Canadian inriver commercial harvest of 3,100 coho salmon was average. After upriver Canadian catches are subtracted from the inriver run, the above-border-spawning escapement is estimated at 219,400 coho salmon, which exceeds the minimum escapement goal of 38,000 fish. The U.S. harvest of 39,800 coho salmon in the District 111 mixed stock fishery was below average. Alaskan hatcheries contributed an estimated 4% of the District 111 harvest, or 1,600 fish.

The harvest of 77,600 pink salmon O. gorbuscha in District 111 was below average. Pink salmon were not retained in the Canadian commercial inriver fishery in 2002. The escapement of pink salmon to the Taku River was likely below average as evidenced by the fish wheel catch and release of 5,700 pink salmon, which was below average.

The catch of chum salmon O. keta in the District 111 fishery was 231,000 fish; composed of 230,100 summer run fish (prior to mid-August) and 900 fall run fish. The harvest of summer chum salmon, primarily Alaskan hatchery stocks, was below average. The harvest of fall chum salmon, composed of wild Taku River and Port Snettisham stocks, was below average. As with pink salmon, there was non-retention of chum salmon in the Canadian inriver fishery and the reported catch was 0 fish in 2002. Although spawning escapement is not known the Canyon Island fish wheel catch of 200 chum salmon was below average.

Alsek River

The Alsek River sockeye salmon harvest of 16,900 fish in the U.S. commercial fishery was average. The Canadian inriver harvest of 2,300 fish was above average. The Klukshu River weir count of 25,700 sockeye salmon was above average and was above the goal-range of 7,500 to 15,000 fish. The count of 11,900 early-run sockeye salmon (count through August 15) was above average and a record high count. The late run count of 13,800 fish was above average for the same period. The mark-recapture program indicated an Alsek River sockeye salmon run above Dry Bay of 79,500 fish with the Klukshu stocks representing 32% of the total Alsek River run.

The Chinook salmon run to the Alsek River seemed average to below average. The U.S. Dry Bay catch of 700 Chinook salmon was above average. The combined Canadian sport and aboriginal fishery catch of 300 Chinook salmon was below average. The 2,200 Chinook salmon counted through the Klukshu River weir was below average. Of the total count, 2,100 Chinook salmon were estimated to have spawned, thus achieving the escapement goal range of 1,100 to 2,300 Chinook salmon. The mark-recapture program indicated an inriver run of 9,600 large fish, below average. The Klukshu stock contributed 24% of the large Chinook salmon spawning escapement in the Alsek River.

Current stock assessment programs prevent an accurate comparison of the Alsek River coho salmon run with historical runs. The U.S. Dry Bay catch of 9,500 coho salmon was above average, while the combined Canadian inriver aboriginal and sport fishery catch of 300 fish was above average. The operation of the Klukshu weir does not provide a complete enumeration of coho salmon into this system since it is removed before the run is over; however, it does provide an annual index. The count of 9,900 coho salmon was above average.

Enhancement

Eggs and milt were collected from the year 2002 sockeye salmon escapements at Tahltan and Tatsamenie Lakes. For the sixth year in a row the 6.0 million egg-take goal was not achieved at Tahltan Lake due to low escapement. A total of 4.0 million eggs were collected at Tahltan Lake. At Tatsamenie Lake, 2.5 million eggs were collected for the hatchery. No eggs were collected for the in-lake incubation project.

Outplants of 2001 brood-year sockeye salmon fry in May and June 2002 included 2.53 million fry into Tahltan Lake, no fry into Tuya Lake, and 2.23 million fry into Tatsamenie Lake. Green-egg to planted-fry survivals were 77.8% Tahltan Lake, and 58.8% Tatsamenie Lake. Survival to emergence was average for Tahltan Lake and below average for Tatsamenie Lake. Three incubators from the Tatsamenie Lake 2001 brood year were lost to IHNV. Losses from IHN have occurred in the past at Snettisham Hatchery and are expected in sockeye salmon culture.

Outmigrant smolt sampling was conducted at Tahltan and Tatsamenie Lakes in 2002. Total emigration from Tahltan Lake was an estimated at 1,874,000 smolts with approximately 44% (654,000 outmigrants) from past fry plants. Sampling at Tuya Lake was not conducted in 2002. The Tatsamenie Lake smolt mark-recapture program estimated that 233,000 (S.E. 40,735), smolts emigrated from the lake with planted fish contributing approximately 42% of the total (88,473 smolts). Estimates of survival of the brood year 2000 fry plants indicate smolt from planted fry had a 6-fold increase over wild for one release group. Estimates of survival from fry to smolt were early fed hatchery group 4.6%, late fed hatchery group 1.4%, and wild fish 0.8 %.

The egg incubation and thermal-marking program was continued at Snettisham Hatchery in 2002. Snettisham hatchery is operated by DIPAC (Douglas Island Pink and Chum, Inc.), a private aquaculture organization in Juneau. A co-operative agreement between ADF&G and DIPAC provides for Snettisham hatchery to serve the needs of the joint TBR enhancement projects.

Adult sockeye salmon otoliths were processed inseason by the ADF&G otolith lab to estimate the weekly contribution of fish from U.S./Canada TBR fry planting programs to the District 106, 108, and 111 gillnet fisheries and to Canadian commercial fisheries in the Stikine and Taku Rivers. Contribution estimates of planted fish to Alaskan catches were 4,700 Stikine River sockeye salmon to District 106 and 108 (8% of that catch) and 700 Taku River sockeye salmon to District 111 (<1% of that catch). Estimates of contributions to Canadian fisheries included 6,100 sockeye salmon (35% of that catch) to Stikine River fisheries and 50 sockeye salmon to the Taku River fisheries (<1% of that catch).

ESTIMATES OF TRANSBOUNDARY RIVER SALMON PRODUCTIONS, HARVEST AND ESCAPEMENT AND A REVIEW OF JOINT ENHANCEMENT ACTIVITIES IN 2004.

TCTR (13)-3 – July 2013

Postseason final estimates of catches and escapements of Pacific salmon returning to the transboundary Stikine, Taku, and Alsek Rivers for 2004 were presented and compared with historical patterns. Average, unless stated differently, refers to the 1994-2003 averages. Relevant information pertaining to the management of appropriate U.S. and Canadian fisheries is presented and the use of inseason management models is discussed. Results from transboundary river sockeye salmon Oncorhynchus nerka enhancement projects are also reviewed.

Stikine River

The 2004 Stikine River sockeye salmon run was estimated at 310,000 fish, of which approximately 211,000 fish were harvested in various fisheries including test fisheries. An estimated 99,000 Stikine River fish escaped to spawn, including 300 fish that migrated to the Tuya River block that were not harvested. The run and harvest were above average. The Tahltan Lake sockeye salmon escapement of 63,000 was above the upper bound of the goal range (18,000 to 30,000 fish. The estimated U.S. commercial catch of Stikine River sockeye salmon in Districts 106 and 108 was 112,000 fish and the Canadian inriver commercial, aboriginal, and excess salmon to spawning requirement (ESSR) fishery catches combined were 86,000 fish. The inriver test fishery harvested 1,300 sockeye salmon and there was no marine test fishery in 2004. The Stikine Management Model (SMM) predicted a run greater than the preseason forecast after week 30. Weekly inseason model forecasts ranged from 160,000 to 308,000 sockeye salmon; the final inseason model prediction was 299,000 fish (both U.S. and Canada), with a total allowable catch (TAC) of 242,000 fish. Based on the postseason run size estimates and TAC calculations of 96,000 Stikine River fish for each country, Canada harvested 65% and the U.S. harvested 95% of their respective TACs. The broodstock collection and otolith sampling removed 4,200 and 400 sockeye salmon respectively from the escapement to Tahltan Lake leaving a spawning escapement of 58,700 fish. The estimated spawning escapement of 36,000 mainstem Stikine River sockeye salmon was within the goal of 20,000 to 40,000 fish for this stock group. The total sockeye salmon run calculated from mark–recapture study was 208,000 sockeye salmon, approximately 10% greater than the estimate generated from the test fishery CPUE.

The harvest of Chinook salmon O. tshawytscha in Canadian commercial and aboriginal fisheries in the Stikine River was 3,900 large fish and 2,600 non large fish; both above average. An additional 50 large and 80 non large Chinook salmon were taken in the Canadian inriver test fishery. The U.S. marine harvest of Chinook salmon (all stocks) in the District 106 and 108 mixed stock gillnet fisheries of 10,100 fish was above average. The Chinook salmon spawning escapement of 16,400 large adults through the Little Tahltan River weir was twice the upper bound of the escapement goal range of 2,700 to 5,300 fish and the highest on record. The total Stikine River Chinook salmon escapement as estimated from a mark–recapture study was 49,000 fish.

As with Chinook salmon, the U.S. marine harvest of Stikine River coho salmon O. kisutch is unknown since there is no stock identification program for this species. Mixed stock coho harvests in Districts 106 and 108 were 136,400 and 26,400 fish, respectively; above average. Alaskan hatchery fish comprised approximately 36% and 9% of the harvest in Districts 106 and 108, respectively. The Canadian inriver coho catch of 300 fish was 25% of average. The aerial survey count from six index sites of 3,000 fish was 75% of average.

Taku River

The postseason estimate of the 2004 Taku River sockeye salmon run was 204,015 fish, including an estimated catch of 98,000 fish and an above-border spawning escapement of 107,000 sockeye salmon. The run size was below average and the escapement was above the escapement goal range of 71,000 to 80,000 fish. An estimated 77,000 Taku River sockeye salmon were harvested in the District 111 commercial fishery; below average, and an estimated 1,000 sockeye salmon were harvested in the U.S. inriver personal use fishery. Canadian inriver commercial harvested 20,200 sockeye salmon and aboriginal fishery harvest 100 sockeye salmon. The commercial harvest was below average. In 2004, Canada harvested an estimated 16%, and the U.S. harvested 60% of the TAC.

The harvest of large Chinook salmon in the Canadian commercial fishery in the Taku River was 2,100 fish; above average. In addition, 300 non large Chinook salmon were harvested; above average. The Canadian aboriginal fishery in the Taku River harvested 500 large Chinook salmon. District 111 mixed stock gillnet fishery harvest of 2,300 Chinook salmon was average. Approximately 21% of the harvest was estimated to be of Alaska hatchery origin. The escapement of 9,100 Chinook salmon counted in Taku River index areas was average, and was in the revised index escapement goal range of 5,800 to 10,500 fish. The above-border mark–recapture estimate for Chinook salmon is 78,000 fish.

The estimated above border run of Taku River coho salmon in 2004 was 144,000 fish, which was above average. The Canadian inriver commercial harvest included 6,000 coho salmon; average. After upriver Canadian harvest are subtracted from the inriver run, the above-border spawning escapement was estimated at 134,500 coho salmon, which exceeds the minimum escapement goal of 38,000 fish. The U.S. harvest of 45,300 coho salmon in the District 111 mixed stock fishery was 1average. Alaskan hatcheries contributed an estimated 6% of the District 111 harvest, or 2,600 fish.

The harvest of 150,400 pink salmon O. gorbuscha in District 111 was above average. Pink salmon were not retained in the Canadian commercial inriver fishery in 2004. The Taku River pink escapement was likely below above average, as evidenced by the fish wheel catch and release of 8,500 which was below average.

The catch of chum salmon O. keta in the District 111 fishery was 131,500 fish, and was composed of 126,000 summer run fish (prior to mid-August) and 5,400 fall run fish. The harvest of summer chum salmon, primarily Alaskan hatchery stocks, was below average. The harvest of fall chum salmon, composed of wild Taku River and Port Snettisham stocks, was average. As with pink salmon, there was non-retention of chum salmon in the Canadian inriver fishery and the reported catch was 0 fish in 2004. Although spawning escapement is not known the Canyon Island fish wheel catch of 400 chum salmon was above average.

Alsek River

The Alsek River sockeye salmon harvest of 18,000 fish in the U.S. commercial fishery was average. The Canadian inriver harvest of 2,100 fish was above average harvest. The Klukshu River weir count of 15,400 sockeye salmon was average and just above the goal-range of 7,500 to 15,000 fish. The count of 3,500 early run sockeye salmon (count through August 15) was above average. The late run count of 11,900 fish was average. The mark–recapture program indicated an Alsek River sockeye salmon run above Dry Bay of 70,200 fish with the Klukshu stocks representing 22% of the total Alsek River run.

The Chinook salmon run to the Alsek River appeared to be near average. The U.S. Dry Bay catch of 660 Chinook salmon was average. The combined Canadian sport and aboriginal fishery catch of 190 Chinook salmon was below average. The 2,500 Chinook salmon counted through the Klukshu River weir was average. Of the total count, 2,500 Chinook salmon were estimated to have spawned, over the goal range of 1,100 to 2,300 Chinook salmon. The mark-recapture estimate of the spawning escapement of large fish in the Alsek River was 7,565 large Chinook salmon (Appendix E. 11).

Current stock assessment programs prevent an accurate comparison of the Alsek River coho salmon run with historical runs. The U.S. Dry Bay catch of 2,550 coho salmon was below average, while the combined Canadian inriver aboriginal and sport fishery catch of 130 fish was average. The operation of the Klukshu weir does not provide a complete enumeration of coho salmon into this system since it was removed before the run was over; however, it does provide an annual index. The count of 7,500 coho salmon was below average.

Enhancement

Eggs and milt were collected from the year 2004 sockeye salmon escapements at Tahltan and Tatsamenie Lakes. A total of 6.1 million eggs were collected at Tahltan Lake. At Tatsamenie Lake, 2.6 million eggs were collected for the hatchery.

Outplants of 2003 brood-year sockeye salmon fry in May and June 2004 included, 2.2 million fry into Tahltan Lake, 2.4 million fry into Tuya Lake, and 2.1 million fry into Tatsamenie Lake. Green-egg to planted-fry survivals were 84%, 90%, and 87% for the Tahltan, Tuya and Tatsamenie outplants, respectively. Survival to emergence were above average.

The egg incubation and thermal-marking program was continued at Snettisham Hatchery in 2004. Snettisham hatchery is operated by DIPAC (Douglas Island Pink and Chum, Inc.), a private aquaculture organization in Juneau. A co-operative agreement between ADF&G and DIPAC provides for Snettisham hatchery to serve the needs of the joint TBR enhancement projects.

Adult sockeye salmon otoliths were processed inseason by the ADF&G otolith lab to estimate the weekly contribution of fish from US/Canada TBR fry planting programs to the District 106, 108, and 111 gillnet fisheries and to Canadian commercial fisheries in the Stikine and Taku Rivers. Final contribution estimates of planted fish to Alaskan harvest were 42,900 planted Stikine River fish to District 106 and 108, (19% of that catch) and 700 planted Taku River fish to District 111 (<1% of that harvest). Final estimates of contributions to Canadian fisheries included 23,700 planted fish to Stikine River fisheries (31% of that catch) and 300 planted fish to the Taku River fisheries (<1% of that catch).

SALMON MANAGEMENT AND ENHANCEMENT PLANS FOR THE STIKINE, TAKU AND ALSEK RIVERS, 2013

TCTR (14)-1 – January 2014

Management of transboundary river salmon to achieve conservation, allocation and enhancement objectives, as stipulated by the Pacific Salmon Treaty (PST), requires a co-operative approach by Canada and the United States. It is important that both Parties have a clear understanding of the objectives and agree upon procedures to be used in managing the fisheries, including the criteria upon which modifications of fishing patterns will be based. This document is intended to facilitate co-operative salmon management, stock assessment, research and enhancement on transboundary stocks of the Stikine, Taku, and Alsek rivers conducted by the Canadian Department of Fisheries and Oceans (DFO), the Tahltan and Iskut First Nations (TIFN), the Taku River Tlingit First Nation (TRTFN), the Champagne & Aishihik First Nation (CAFN) and the Alaska Department of Fish and Game (ADF&G).

The report contains, by river system and species, the 2013 salmon run outlooks, spawning escapement goals, a summary of harvest sharing objectives, and an outline of management procedures to be used during the conduct of the 2013 fisheries. Numerical forecasts are presented for: Stikine sockeye and Chinook and Taku Chinook, which are required by the PST; Taku sockeye and coho; and Alsek sockeye and Chinook salmon. Outlooks for other stocks are given qualitatively with reference to brood year escapement data where available. The report also contains joint plans for fry plants and egg collections and a detailed list of proposed field projects for 2013, identifying agency responsibility and contacts for the various functions within the projects.

F. JOINT TECHNICAL COMMITTEE ON DATA SHARING

No reports were finalized for publication during this reporting period.

G. JOINT SELECTIVE FISHERY EVALUATION COMMITTEE

REVIEW OF MASS MARKING AND MARK-SELECTIVE FISHERY ACTIVITIES PROPOSED TO OCCUR IN 2012

SFEC (13)-2 – May 2013

This report provides a summary of the proposed coastwide plans for mass marking (MM) of Coho and Chinook salmon and the conduct of mark-selective fisheries (MSFs) in 2012. Issues with implications for maintaining the coastwide coded-wire tag program are identified and recommendations are proposed.

Summary of 2012 Mass Marking Proposals

Throughout this report a mass-marked fish refers to a fish with an adipose-fin clip and a double-index tag (DIT) group includes two related coded-wire-tag (CWT) groups, one marked and one unmarked. The terms 'marked' and 'clipped', and likewise 'unmarked' and 'unclipped', are used interchangeably.

Mass Marking and DIT Programs

Twenty-two proposals (8 for Coho and 14 for Chinook) were received for mass marking (MM) occurring in 2012 (Appendix E). The Selective Fishery Evaluation Committee (SFEC) believes these proposals cover all MM programs of relevance to the Pacific Salmon Commission (PSC).

Approximately 35 million Coho are proposed to be mass-marked coastwide in 2012 (Table 2.1; Figure 2.1A), a level comparable to that proposed for 2011. Essentially all hatchery Coho production intended for harvest from southern British Columbia (BC) and southern United States (US) hatcheries will be mass marked. Currently, there are 19 proposed Coho salmon DIT groups (Table 2.1), of which two will be released from southern BC, seven from Puget Sound (PS), six from the Washington (WA) coast, and four from the Columbia River Basin.

Approximately 113 million Chinook are proposed to be mass marked in 2012 from southern US Chinook hatcheries (Table 2.1; Figure 2.1B). This is approximately 7 million more than were proposed for 2011. Most all hatchery Chinook production from southern US hatcheries intended for harvest will be mass marked. Currently there are 16 proposed Chinook salmon DIT groups (Table 2.1, Appendix H), of which one will be released from the Fraser River, eight from Puget Sound facilities, two from WA coastal facilities, and five from Columbia River facilities.

Sampling Programs

Assuming recent exploitation rates and sampling programs, the SFEC estimates the proposed MM of Coho stocks in 2012 will result in annual encounters of untagged marked Coho in sampling programs of approximately 1,400 Coho in Alaska (AK) and 7,800 Coho in Canada (Table 2.4). For southern US Chinook stocks, annual encounters of untagged marked Chinook in sampling programs are projected to be approximately 6,500 Chinook in AK, 22,000 Chinook in Canada, and 1,900 Chinook in California (Table 2.4).

Prior to MM, the adipose-fin clip was employed as a visual indicator for fish containing a CWT. Consequently, sampling programs which were designed to collect heads from fish with missing adipose fins resulted in samples of heads, all which contained CWTs. With MM, a large number of marked fish do not contain CWTs; further, CWTs must be recovered from both marked and unmarked fish to obtain data for DIT releases to estimate fishery impacts. Electronic tag detection (ETD) equipment has been developed as a means to efficiently identify marked and unmarked fish containing CWTs. However, ETD is not employed coastwide because of continuing reservations by some agencies regarding the cost, accuracy, and practical feasibility of incorporating this technology into their sampling programs. The Alaska Department of Fish and Game (ADFG), Canadian Department of Fisheries and Oceans (CDFO), Oregon Department of Fish and Wildlife

(ODFW), and California Department of Fish and Game (CDFG) all conduct sampling programs which will not recover the unclipped component of DIT programs that are required to assess impacts of MSFs. Considering sampling programs coastwide, some agencies already implement comprehensive electronic sampling strategies to recover CWTs from sport and commercial fisheries, while other agencies are still working to increase their use of ETD methods. Washington State continues to fully implement electronic sampling state-wide and consistently reports CWT recoveries of unmarked DIT releases in sport marine and some freshwater MSFs, as well as in non-selective fisheries (NSFs). Starting in 2008, Canada also committed to full electronic sampling in all commercial fisheries for Chinook and reporting of all DIT CWTs. Coho in all Canadian commercial fisheries have also been electronically sampled with the exception of the Coho landed by the northern BC 'ice boat' fleet, where visual sampling is used to recover CWTs. In sport fisheries, Canada continues to rely on the Sport Head Recovery Program (SHRP) to recover CWTs from NSFs and MSFs alike and thus, no unmarked DIT recoveries are available from them. Oregon Department of Fish and Wildlife continues to use visual sampling of fall Chinook in the Columbia River and the Oregon (OR) coast fisheries, also resulting in no recoveries of unmarked DIT groups. However, beginning in 2011, ODFW initiated electronic sampling of the ocean sport and commercial salmon fisheries off the coast of OR. Fisheries from which unmarked DIT recoveries should have been observed create gaps in analyses of fishery impacts on unmarked (wild) fish.

Encounters of large numbers of mass-marked Chinook are increasingly impacting catch sampling programs in northern fisheries; for example, approximately 70% of the Chinook caught in 2011 in the southeast Alaskan troll fishery with a missing adipose fin did not contain a CWT. The increased costs to deal with the additional marked fish (e.g., storage, and shipping to and sorting of heads in the dissection laboratories) are not quantified, but will impact the programs.

Summary of 2012 Mark-Selective Fishery Proposals

MSFs have been prosecuted for Coho since 1998 and for Chinook since 2003. For 2012, the SFEC received 39 MSF proposals for Coho and Chinook salmon in CDFO, WDFW, ODFW, and IDFG fisheries. Fourteen proposals were received for Coho salmon MSFs occurring in 2012 and twenty-five proposals were received for Chinook salmon MSFs. A new proposal from IDFG was received this year for an existing fishery on Snake River fall Chinook. This fishery began in 2009. Otherwise, no new MSFs that had not occurred previously were proposed for 2012. Agencies provided the majority of the requested information in each of the proposals and the proposals were submitted before SFEC met to review the proposals. The SFEC believes these proposals cover all MSFs planned for 2012 of relevance to the PSC. The proposals submitted to the SFEC for review are provided in Table 3.1. Further details describing the proposed MSFs and comments by the SFEC are provided in Table 3.2 and Table 3.3 (also see Appendix F)

Up until 2008, Chinook MSFs were largely restricted to Puget Sound and in the Columbia River. Since then, Chinook MSFs have expanded substantially in marine and freshwater areas. In 2007, 12 Chinook MSFs were prosecuted; in 2010, that number doubled to 24 Chinook MSFs, resulting in a much larger number of indicator stocks vulnerable to being encountered in MSFs.

The majority of current MSF proposals are for terminal marine or freshwater areas, each of which will impact mature fish of one to several stocks. Multiple MSFs for both Coho and Chinook are also expected to occur in ocean areas in BC, WA (WA ocean areas 1 through 4 and the Columbia River), and OR in 2012. These fisheries will impact many stocks and also multiple broods of Chinook. Historical information on encounters of tagged and marked fish in mark-selective fisheries for the run years 2006-2009 for Coho and 2006-2010 for Chinook is provided in Table 3.4 and Table 3.5. In addition, Table 2.4 provides estimates of projected encounters of fish to be mass marked in 2012 in future regional fishery sampling programs. These estimates are based on the number of mass-marked fish proposed to be released by each participating agency.

Issues and Concerns

Timelines of Proposals

All requested MM and MSF proposals were submitted prior to the annual meeting of the SFEC in early December, but most of these were not submitted by the deadline of November 1. Receiving the proposals by November 1 would allow the SFEC members time to review them prior to the meeting, enabling members more time during the meeting to prepare timely commentary back to MSF proponents.

Absence of Post-Season Reports

Post-season reports on MSFs are required for each MSF prosecuted. One of the basic functions of these reports is to provide a record of how fisheries were actually prosecuted (whether they took place) and whether there were any changes relative to the proposal in the way the fisheries and sampling programs were conducted. These reports are to be submitted in the form of three tables (Appendix I). The first two tables should be submitted by the annual PSC post-season meeting following the year of the fishery. No SFEC MSF post-season report/tables were found in the US or Canadian post-season reports (January 2012). Although these SFEC tables are not included in the PSC post-season reports, CDFO and WDFW do provide fishery regulations and preliminary landed catch estimates for mark-selective fisheries in these reports.

Mixed-Bag Regulations

Regulations to implement MSFs are increasingly complex, making analyses to estimate impacts challenging in a number of ways. Different types of mixed bag regulations are part of the sport MSFs proposed by Canada, Washington, and Oregon. As MSFs expand, a variety of types of mixed bag regulations are being proposed. The regulations include a range of rules that specify when and how anglers may retain various combinations of adult and juvenile marked and unmarked fish in their daily bag limits. The SFEC is not aware of reliable methods for estimating impacts on marked and unmarked fish under mixed bag regulations and the agencies proposing these mixed bag regulations should assist in developing the analytical tools to measure the impacts of these fisheries.

Recommendations and Issues Requiring PSC Direction

Proposal Review Process

It is recommended that the PSC request agencies to submit proposals for all potential 2013 MM and MSFs by the first of November 2012, and for agencies to provide both preliminary and final post-season reports on the conduct of MSFs within the timeframe adopted by the PSC. Agencies need to prioritize these tasks so that proposals and MSF post-season reports are completed and submitted in a timely manner.

Interagency Coordination and Cooperation

Mass marking, double-index tagging, and CWT sampling programs are not sufficiently coordinated to support analysis by PSC technical committees. It is also not clear that agencies are collecting adequate data needed to permit estimation of unmarked CWT recoveries in fisheries and escapements so that cohort reconstructions can be carried out on unmarked DIT releases. With the expansion of Chinook marine MSFs, the geographical range of electronic CWT sampling needs to be expanded and the number of DIT stocks needs to be increased. Specifically, electronic tag detection needs to be implemented by ODFW for OR Columbia River fall Chinook fisheries and escapement to recover DITs for Chinook indicator stocks. In addition, DIT groups should be added for the following stocks:

Chinook stocks proposed for DIT releases:

- Columbia River summers (Wells Hatchery);
- Lower Columbia River tule fall Chinook (possibly Washougal);
- Snake River fall subyearlings (Lyons Ferry Hatchery);
- Willamette Spring (reinstate DIT program with electronic terminal sampling);
- North Oregon Coast (Salmon River); and,
- Mid Oregon Coast.

Proposed changes in Coho DIT releases:

- USFWS Eagle Creek – increase DIT release group size from 25,000 to the standard 50,000.

The PSC should continue to support technical and policy processes to develop agreements to clarify responsibilities for maintaining a functional CWT system; these processes should build upon recommendations presented by the CWT Work Group in 2008.

H. HABITAT AND RESTORATION COMMITTEE

No reports were finalized for publication during this reporting period.

Publications of the Pacific Salmon Commission

PART VI
PUBLICATIONS OF THE PACIFIC SALMON COMMISSION

Documents listed herein are available to domestic fishery agencies of Canada and the United States, research organizations, libraries, scientists and others interested in the activities of the Commission, through the offices of the Secretariat, 600 - 1155 Robson Street, Vancouver, B.C., V6E 1B5. Photocopying charges may be levied for documents which are out of print.

Reports published by the Pacific Salmon Commission after March 31, 2000 including Commission annual reports, annual reports of the Fraser River Panel, Joint Technical Committee reports and technical reports of the Pacific Salmon Commission are also available in full text format on the Commission's website at www.psc.org.

Documents listed here are those which were published during the period from 2013/14 inclusive. For previous publications, please refer to the Pacific Salmon Commission's website at www.psc.org/publications.

A. ANNUAL REPORTS

Pacific Salmon Commission 2008/2009 Twenty Fourth Annual Report. May 2013.

Pacific Salmon Commission 2009/10 Twenty Fifth Annual Report. August 2013.

Pacific Salmon Commission 2010/11 Twenty Sixth Annual Report. November 2013

B. REPORTS OF JOINT TECHNICAL COMMITTEES

i. Joint Chinook Technical Committee

TCCHINOOK (13)-1 *Annual Report of Catch and Escapement for 2012*. July 2013.

TCCHINOOK (14)-1 V.1 *2013 Exploitation Rate Analysis and Model Calibration. Volume One.* February 2014.

TCCHINOOK (14)-1 V.2 *2013 Exploitation Rate Analysis and Model Calibration. Volume Two. Appendix Supplement.* February 2013.

ii. Joint Chum Technical Committee

TCCHUM (14)-1 2011 *Post Season Summary Report*. January 2014

iii. Joint Coho Technical Committee

No reports were finalized for publication during this reporting period.

iv. Joint Data Sharing Technical Committee

No reports were finalized for publication during this reporting period.

v. Joint Northern Boundary Technical Committee

TCNB (13)-1 *U.S./Canada Northern Boundary Area 2012 Salmon Fisheries Management Report and 2013 Preliminary Expectations.* September 2013.

TCNB (14)-1 *U.S./Canada Northern Boundary Area 2013 Salmon Fisheries Management Report and 2014 Preliminary Expectations.* February 2014.

vi. Joint Transboundary Technical Committee

TCTR (13)-1 *Estimates of Transboundary River Salmon Production, Harvest and Escapement and a Review of Joint Enhancement Activities in 2001.* July 2013.

TCTR (13)-2 *Estimates of Transboundary River Salmon Production, Harvest and Escapement and a Review of Joint Enhancement Activities in 2002.* July 2013.

TCTR (13)-3 *Estimates of Transboundary River Salmon Production, Harvest and Escapement and a Review of Joint Enhancement Activities in 2004.* July 2013.

vii. Selective Fishery Evaluation Committee

SFEC (13)-2 *Review of Mass Marking and Mark-Selective Fishery Activities Proposed to Occur in 2012.* May 2013.

viii. Habitat and Restoration Committee

No reports were finalized for publication during this reporting period.

C. REPORTS OF THE FRASER RIVER PANEL

No reports were finalized for publication during this reporting period.

D. TECHNICAL REPORT SERIES OF THE PACIFIC SALMON COMMISSION

No reports were finalized for publication during this reporting period.

E. PUBLICATIONS BY PACIFIC SALMON COMMISSION SECRETARIAT STAFF

No reports were finalized for publication during this reporting period.

F. REPORTS OF THE INTERNATIONAL PACIFIC SALMON COMMISSION

Responsibility for maintenance of the library of the International Pacific Salmon Fisheries Commission, on its termination December 31, 1985, was transferred to the Pacific Salmon Commission. Documents in the Library include historical archival papers which are available to researchers and other interested parties through contact with the Pacific Salmon Commission's Librarian.

Publication of John F. Roos' History of the International Pacific Salmon Fisheries Commission, and P. Gilhousen's Estimation of Fraser River Sockeye Escapements ended all publication series of the International Pacific Salmon Fisheries Commission. Copies of all in-print Progress Reports and Bulletins of the International Pacific Salmon Fisheries Commission are available free of charge through the Library of the Pacific Salmon Commission. Copies of the History of the International Pacific Salmon Fisheries Commission may also be ordered through the Library of the Pacific Salmon Commission.

G. DOCUMENTS SUBMITTED BY THE PARTIES

In compliance with provisions of the Treaty, the Parties provide annual post-season fishery reports and updates on their respective salmonid enhancement programs to the Commission. Documents received during 2013/14 were:

1. *Post Season Report for 2013 Canadian Treaty Limit Fisheries*. Canada Department of Fisheries and Oceans. January 2014.

2. *Preliminary 2013 Post Season Report for United States Salmon Fisheries of Relevance to the Pacific Salmon Treaty*. United States Section, Pacific Salmon Commission. January 2014

Report of the Auditors for 2013/2014

PART VII
AUDITORS' REPORT AND FINANCIAL STATEMENTS FOR THE PERIOD APRIL 1, 2013 TO MARCH 31, 2014

Financial Statements of

PACIFIC SALMON COMMISSION

Year ended March 31, 2014

KPMG LLP
PO Box 10426 777 Dunsmuir Street
Vancouver BC V7Y 1K3
Canada

Telephone (604) 691-3000
Fax (604) 691-3031
Internet www.kpmg.ca

INDEPENDENT AUDITORS' REPORT

To the Commissioners of the Pacific Salmon Commission

We have audited the accompanying financial statements of the Pacific Salmon Commission, which comprise the statement of financial position as at March 31, 2014, the statements of operations and fund balances and cash flows for the year then ended, and notes, comprising a summary of significant accounting policies and other explanatory information. The financial statements have been prepared by management in accordance with the financial reporting provisions of Chapter IX of the Pacific Salmon Commission Bylaws amended and adopted February 15, 2013.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with the financial reporting provisions of Chapter IX of the Pacific Salmon Commission Bylaws amended and adopted February 15, 2013; this includes determining that the basis of accounting is an acceptable basis for the preparation of these financial statements in the circumstances, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

KPMG LLP is a Canadian limited liability partnership and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity.
KPMG Canada provides services to KPMG LLP.

Opinion

In our opinion, the financial statements as at and for the year ended March 31, 2014 are prepared, in all material respects, in accordance with the financial reporting provisions of Chapter IX of the Pacific Salmon Commission Bylaws amended and adopted February 15, 2013.

Basis of Accounting

Without modifying our opinion, we draw attention to note 2(a) to the financial statements, which describes the basis of accounting. The financial statements are prepared to assist the Pacific Salmon Commission to meet the requirements of the Treaty between the Government of Canada and the Government of the United States of America concerning Pacific Salmon effective January 1, 2013. As a result, the financial statements may not be suitable for other purposes.

Restriction on Use

Our report is intended solely for the Commissioners and the Governments of Canada and the United States of America and should not be used by parties other than the Commissioners and the Governments of Canada and the United States of America.

KPMG LLP

Chartered Accountants

July 11, 2014
Vancouver, Canada

PACIFIC SALMON COMMISSION

Statement of Financial Position
(Expressed in Canadian dollars)

March 31, 2014, with comparative information for 2013

		Restricted							
	General Fund	Working Capital Fund	Test Fishing Fund	Research and Project Fund	Capital Assets Fund	Yukon Legacy Fund	Total	2014	2013
Assets									
Current assets:									
Cash	$ 667,702	$ -	$ -	$ 1,389,109	$ -	$ -	$ 1,389,109	$ 2,056,811	$ 1,670,508
Accounts receivable	102,740	157	898	-	-	-	1,055	103,795	144,354
Due from trust funds (note 6)	173,638	-	-	-	-	515,537	515,537	689,175	46,627
Prepaid expenses	45,807	-	-	-	-	-	-	45,807	36,792
Short-term investments	2,447,228	102,365	802,772	-	-	-	905,137	3,352,365	2,550,000
	3,437,115	102,522	803,670	1,389,109	-	515,537	2,810,838	6,247,953	4,448,281
Capital assets (note 4)	-	-	-	-	387,124	-	387,124	387,124	327,343
	$ 3,437,115	$ 102,522	$ 803,670	$ 1,389,109	$ 387,124	$ 515,537	$ 3,197,962	$ 6,635,077	$ 4,775,624
Liabilities and Fund Balances									
Current liabilities:									
Bank indebtedness	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 73,412
Accounts payable and accrued liabilities (note 3)	627,304	-	-	-	-	7,453	7,453	634,757	665,489
Deferred revenue (note 3)	1,409,818	-	-	-	-	-	-	1,409,818	91,675
	2,037,122	-	-	-	-	7,453	7,453	2,044,575	830,576
Accrued employee future benefit liability (note 5)	1,113,539	-	-	-	-	-	-	1,113,539	793,497
Fund balances:									
Unrestricted	286,454	-	-	-	-	-	-	286,454	532,989
Restricted	-	102,522	803,670	1,389,109	-	508,084	2,803,385	2,803,385	2,291,219
Invested in capital assets	-	-	-	-	387,124	-	387,124	387,124	327,343
	286,454	102,522	803,670	1,389,109	387,124	508,084	3,190,509	3,476,963	3,151,551
	$ 3,437,115	$ 102,522	$ 803,670	$ 1,389,109	$ 387,124	$ 515,537	$ 3,197,962	$ 6,635,077	$ 4,775,624

See accompanying notes to financial statements.

Approved on behalf of the Commission:

W. Ron Allen

Chair, Standing Committee on Finance and Administration

Vice-Chair, Standing Committee on Finance and Administration

PACIFIC SALMON COMMISSION

Statement of Operations and Fund Balances
(Expressed in Canadian dollars)

Year ended March 31, 2014, with comparative information for 2013

		Restricted							
	General Fund	Working Capital Fund	Test Fishing Fund	Special Research and Project Fund	Capital Assets Fund	Yukon River Legacy Fund	Total	2014	2013
Revenue:									
Contributions from contracting parties (note 3)	$ 3,759,272	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,759,272	$ 3,759,272
Grants	96,288	-	-	2,346,585	-	515,537	2,862,122	2,958,410	2,441,962
Interest	35,099	1,372	6,893	-	-	-	8,265	43,364	30,300
Administration fees	167,593	-	-	-	-	-	-	167,593	82,752
Other	19,056	-	-	-	-	-	-	19,056	52,965
Foreign exchange	124,649	-	-	-	-	-	-	124,649	27,502
Gain on disposal of capital assets	-	-	-	-	3,224	-	3,224	3,224	-
Test fishing	-	-	2,299,903	-	-	-	2,299,903	2,299,903	1,087,237
	4,201,957	1,372	2,306,796	2,346,585	3,224	515,537	5,173,514	9,375,471	7,481,990
Expenses:									
Amortization	-	-	-	-	137,897	-	137,897	137,897	142,325
Salaries and employee benefits	3,297,186	-	-	-	-	-	-	3,297,186	2,951,324
Travel and transportation	72,826	-	-	-	-	-	-	72,826	115,034
Rents and communication	130,563	-	-	-	-	-	-	130,563	115,926
Printing and reproductions	8,935	-	-	-	-	-	-	8,935	3,562
Contract services	677,860	-	-	-	-	-	-	677,860	469,134
Materials and supplies	66,668	-	-	-	-	-	-	66,668	32,033
Test fishing	-	-	2,022,687	-	-	-	2,022,687	2,022,687	1,066,963
Loss on disposal of capital assets	-	-	-	-	-	-	-	-	10,856
Consultations and workshops	-	-	-	2,627,984	-	7,453	2,635,437	2,635,437	2,133,553
	4,254,038	-	2,022,687	2,627,984	137,897	7,453	4,796,021	9,050,059	7,040,710
Excess (deficiency) of revenue over expenses	(52,081)	1,372	284,109	(281,399)	(134,673)	508,084	377,493	325,412	441,280
Fund balance, beginning of year	532,989	101,150	519,561	1,670,508	327,343	-	2,618,562	3,151,551	2,710,271
Interfund transfers	(194,454)	-	-	-	194,454	-	194,454	-	-
Fund balance, end of year	$ 286,454	$ 102,522	$ 803,670	$ 1,389,109	$ 387,124	$ 508,084	$ 3,190,509	$ 3,476,963	$ 3,151,551

See accompanying notes to financial statements.

PACIFIC SALMON COMMISSION

Statement of Cash Flows
(Expressed in Canadian dollars)

Year ended March 31, 2014, with comparative information for 2013

	2014	2013
Cash provided by (used in):		
Operations:		
Excess of revenue over expenses	$ 325,412	$ 441,280
Items not involving cash:		
Amortization	137,897	142,325
Loss (gain) on disposal of capital assets	(3,224)	10,856
Net benefit plan expense	794,094	673,609
Employer contributions for employee future benefits	(474,052)	(397,521)
Net change in non-cash operating working capital	676,407	(19,107)
	1,456,534	851,442
Investing:		
Additions to capital assets	(197,974)	(105,955)
Proceeds on sale of capital assets	3,520	2,600
Redemption of short-term investments	2,550,000	1,250,000
Purchase of short-term investments	(3,352,365)	(2,500,000)
	(996,819)	(1,353,355)
Financing:		
Increase (decrease) in bank indebtedness	(73,412)	73,412
Increase (decrease) in cash	386,303	(428,501)
Cash, beginning of year	1,670,508	2,099,009
Cash, end of year	$ 2,056,811	$ 1,670,508

See accompanying notes to financial statements.

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1. Nature of organization:

Pacific Salmon Commission (the "Commission") was established by the Treaty between the Governments of Canada and the United States of America (the "Contracting Parties") to promote cooperation in the management, research, and enhancement of Pacific Salmon stocks. The Treaty was ratified on March 18, 1985 and amended subsequently.

2. Significant accounting policies:

(a) Basis of accounting:

These financial statements have been prepared in accordance with the financial reporting provisions of Chapter IX of the Pacific Salmon Commission Bylaws amended and adopted February 15, 2013. The financial reporting provisions of Chapter IX of the Pacific Salmon Commission Bylaws amended and adopted February 15, 2013 require the financial statements to be prepared in a manner consistent with generally accepted accounting principles ("GAAP") except that expenses are recognized at the time that the commitment for goods and services are made through purchase orders, rather than at the time the goods or services are received. This exception is to comply with Chapter IX, Section D, Rule 11 of the Bylaws.

Canadian GAAP has been interpreted to mean Canadian Accounting Standards for Not-for-Profit Organizations in Part III of the CPA Canada Handbook ("Not-for-Profit Standards").

(b) Fund accounting and revenue recognition:

The Commission follows the restricted fund method of accounting for contributions.

Restricted contributions related to general operations are initially deferred and recognized as revenue of the General Fund in the year in which the related expenses are incurred. All other restricted contributions are recognized as revenue of the appropriate restricted fund.

Unrestricted contributions are recognized as revenue of the General Fund in the year they are received or receivable, if the amount to be received can be reasonably estimated and collection is reasonably assured.

The Fund classifications are as follows:

(*i*) The General Fund includes funds provided annually through contributions from the Contracting Parties. By agreement of the Contracting Parties, any unexpended balance remaining at the end of one fiscal year may be used to offset contributions in the following year or may be used to offset a shortfall between contributions and approved expenses in the following year. As a result, all amounts are recognized as revenue once received or receivable.

2. Significant accounting policies (continued):

(b) Fund accounting and revenue recognition (continued):

(*ii*) The Working Capital Fund represents monies contributed by the Contracting Parties to be used on a temporary basis to satisfy the capital requirements of the Committee until receipt of new contributions from the Contracting Parties at the beginning of a fiscal year, or for special programs not contained in the regular budget but approved during the fiscal year. Any surplus above a pre-determined fixed limit in the account at the end of the fiscal year is transferred to the general fund and is treated as unrestricted income.

(*iii*) The Test Fishing Fund is established as a revolving fund in which a portion of net test fishing revenues realized in years of high abundance are reserved, to be used to support test fishing programs in years of low abundance and when conservation concerns are an issue.

(*iv*) The Special Research and Project Fund represents monies set aside to fund additional programs as determined by the Contracting Parties, including studies related to Coho Salmon, US Grant Funds for Chinook Technical Committee Support, Chinook Sentinel Stocks Program, Anadromus Fish Grant, Decline in Survival of Fraser River Sockeye, and the Killer Whale Workshop.

(*v*) The Capital Assets Fund reflects the Commission's capital asset transactions. Amortization is charged to the Capital Assets Fund.

(*vi*) The Yukon River Legacy Fund represents funds transferred to the Commission from the Yukon River Panel Society (the "Society"), upon the dissolution of the Society. The use of the funds is restricted to expenditures authorized by the Yukon River Panel.

Transfers between the funds are reviewed and approved by the Commissioners.

(c) Financial instruments:

Financial instruments are recorded at fair value on initial recognition. Freestanding derivative instruments that are not in a qualifying hedging relationship and equity instruments that are quoted in an active market are subsequently measured at fair value. All other financial instruments are subsequently recorded at cost or amortized cost, unless management has elected to carry the instruments at fair value. The Commission has not elected to carry any such financial instruments at fair value.

Transaction costs incurred on the acquisition of financial instruments measured subsequently at fair value are expensed as incurred. All other financial instruments are adjusted by transaction costs incurred on acquisition and financing costs, which are amortized using the straight-line method.

2. Significant accounting policies (continued):

(c) Financial instruments (continued):

Financial assets are assessed for impairment on an annual basis at the end of the fiscal year if there are indicators of impairment. If there is an indicator of impairment, the Commission determines if there is a significant adverse change in the expected amount or timing of future cash flows from the financial asset. If there is a significant adverse change in the expected cash flows, the carrying value of the financial asset is reduced to the highest of the present value of the expected cash flows, the amount that could be realized from selling the financial asset or the amount the Commission expects to realize by exercising its right to any collateral. If events and circumstances reverse in a future period, an impairment loss will be reversed to the extent of the improvement, not exceeding the initial carrying value.

(d) Capital assets:

Capital assets are stated at cost less accumulated amortization. Costs of repairs and replacements of a routine nature are charged as a current expense while those expenses which improve or extend the useful life of the assets are capitalized. Amortization is provided using the straight-line method as follows:

Asset	Rate
Automobiles	5 years
Boats	5 years
Computer equipment and software	3 years
Equipment	5 years
Furniture and fixtures	10 years
Leasehold improvements	Over life of lease

(e) Income taxes:

The Commission is a non-taxable organization under the Foreign Missions and International Organizations Act (1991).

(f) Post-employment benefits:

The Commission has a defined benefit pension plan covering its employees. The benefits are based on years of service and final average salary. The Commission also sponsors a defined benefit life insurance and health care plan for substantially all retirees and employees.

2. Significant accounting policies (continued):

(f) Post-employment benefits (continued):

The Commission uses the deferral and amortization approach to account for its defined benefit plans. The Commission accrues its obligations under the defined benefit plans as the employees render the services necessary to earn the pension and other retirement benefits. The actuarial determination of the accrued benefit obligations for pensions and other retirement benefits uses the projected benefit method prorated on service (which incorporates management's best estimate of future salary levels, other cost escalation, retirement ages of employees, and other actuarial factors). The measurement date of the plan assets and accrued benefit obligation is January 1, 2014. The most recent actuarial valuation of the benefit plans for funding purposes was as of January 1, 2014, and the next required valuation will be as of January 1, 2017.

Actuarial gains (losses) on plan assets arise from the difference between the actual return on plan assets for a period and the expected return on plan assets for that period. For the purpose of calculating the expected return on plan assets, the assets are valued at fair value. Actuarial gains (losses) on the accrued benefit obligation arise from differences between actual and expected experience and from changes in the actuarial assumptions used to determine the accrued benefit obligation. The excess of the net accumulated actuarial gains (losses) over 10% of the greater of the accrued benefit obligation and the fair value of plan assets is amortized over the average remaining service period of active employees. The average remaining service period of the active employees covered by the pension plan is 16 years (2013 - 13 years). The average remaining service period of the active employees covered by the other retirement benefits plan is 16 years (2013 - 14 years).

Past service costs arising from plan amendments are deferred and amortized on a straight-line basis over the average remaining service period of employees active at the date of amendment.

(g) Foreign exchange translation:

Transactions originating in foreign currencies are translated at the exchange rate prevailing at the transaction dates. Assets and liabilities denominated in foreign currency at the year-end date are translated to equivalent Canadian amounts at the rate of exchange in effect at that date. Foreign exchange gains and losses resulting from translation are included in the determination of excess or deficiency of revenue over expenses.

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2. Significant accounting policies (continued):

(h) Use of estimates:

The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Significant areas requiring the use of management estimates relate to the determination of the valuation of accounts receivable, useful lives of capital assets for amortization, the estimate of liabilities and contingencies, and the assumptions with respect to post-employment benefits. Actual results could differ from those estimates.

(i) Short-term investments:

The short-term investments are managed by an external investment manager and are recorded at face value plus accrued interest.

(j) Comparative information:

Certain comparative information has been reclassified to conform with this year's current financial statement presentation.

3. Related parties:

During the year ended March 31, 2014, the Commission received operating contributions from the Contracting Parties totaling $3,759,272 (2013 - $3,759,272). The Commission received $470,000 (2013 - nil) of operating contributions from the Government of Canada and $939,818 (2013 - $91,675) of operating contributions from the Government of the United States of America relating to future periods.

The Commission received nil (2013 - $726,000) of contributions from the Government of Canada for Salmon Test Fisheries activities and related administration. Under the terms of the agreement any unspent funds may be held by the Pacific Salmon Commission and used upon authorization from the Government of Canada to offset operating deficits in the Test Fishing program. The unspent amount of $210,694 (2013 - $391,854) has been recorded within accounts payable and accrued liabilities.

The office and warehouse premises of the Commission are provided by the Government of Canada at no charge.

4. Capital assets:

March 31, 2014	Cost	Accumulated amortization	Net book value
Automobiles	$ 238,694	$ 211,212	$ 27,482
Boats	138,026	114,502	23,524
Computer equipment	685,081	618,627	66,454
Computer software	224,752	202,895	21,857
Equipment	1,476,935	1,335,792	141,143
Furniture and fixtures	360,581	278,668	81,913
Leasehold improvements	133,519	108,768	24,751
	$ 3,257,588	$ 2,870,464	$ 387,124

March 31, 2013	Cost	Accumulated amortization	Net book value
Automobiles	$ 226,544	$ 216,631	$ 9,913
Boats	138,026	108,621	29,405
Computer equipment	717,217	656,917	60,300
Computer software	209,220	201,756	7,464
Equipment	1,446,078	1,268,980	177,098
Furniture and fixtures	297,648	286,633	11,015
Leasehold improvements	133,519	101,371	32,148
	$ 3,168,252	$ 2,840,909	$ 327,343

5. Employee future benefits:

The Commission and its employees contribute to the Pension Plan of the International Fisheries Commissions Pension Society for Employees of Participating Commissions, a multi-employer defined benefit plan, with Headquarters in Canada. The plan covers 74 employees, of which 40 are current or past employees of the Commission.

The Commission also provides employee future benefits including severance, life insurance and medical benefits.

5. Employee future benefits (continued):

The Commission's liabilities are based on an actuarial valuation using a measurement date of January 1, 2014.

	Pension plan		Severance, life insurance and medical benefits	
	2014	2013	2014	2013
Reconciliation of accrued benefit obligation:				
Opening fair value of accrued benefit obligation	$ (13,642,000)	$ (11,787,000)	$ (925,400)	$ (808,600)
Current service cost	(480,873)	(443,857)	(43,300)	(40,500)
Benefits paid	415,157	252,152	131,080	50,655
Interest cost	(542,696)	(532,610)	(35,224)	(36,246)
Actuarial gain	752,012	(1,130,685)	(66,356)	(90,709)
Ending fair value of accrued benefit obligation	$ (13,498,400)	$ (13,642,000)	$ (939,200)	$ (925,400)

	Pension plan		Severance, life insurance and medical benefits	
	2014	2013	2014	2013
Reconciliation of plan assets:				
Opening fair value of plan assets	$ 8,029,092	$ 7,269,563	$ -	$ -
Expected return on plan assets	521,810	514,827	-	-
Employer contributions	342,972	346,866	131,080	50,655
Employee contributions	114,003	97,157	-	-
Benefits paid	(415,157)	(252,152)	(131,080)	(50,655)
Actuarial gain	636,425	52,831	-	-
Ending fair value of plan assets	$ 9,229,145	$ 8,029,092	$ -	$ -
Net unfunded obligation	$ (4,269,255)	$ (5,612,908)	$ (939,200)	$ (925,400)
Unamortized past service costs	-	-	2,680	2,924
Unamortized net actuarial loss	3,719,480	5,418,800	372,756	323,087
Accrued benefit liability	$ (549,775)	$ (194,108)	$ (563,764)	$ (599,389)

The significant actuarial assumptions adopted in measuring the Commission's accrued pension benefit liability are as follows:

	2014	2013
Discount rate	4.8%	3.9%
Expected long-term rate of return on plan assets	6.5%	7.0%
Rate of compensation increase	3.0%	3.0%

5. Employee future benefits (continued):

The plan asset portfolio currently comprises equity investments and debt. Equity investments are 64.2% (2013 - 58.2%) of the portfolio and include Canadian and International investments. Debt is 35.8% (2013 - 41.8%) of the portfolio and comprises short-term debt, bonds, and mortgages. The asset mix is reviewed periodically and may vary in the future.

The Commission's net benefit plan expense is as follows:

	2014	2013
Current service cost, net	$ 410,170	$ 387,200
Interest cost	577,920	568,856
Expected return on plan assets	(521,810)	(514,827)
Amortization of past service cost	244	244
Amortization of net actuarial loss	327,570	255,743
Net benefit plan expense	$ 794,094	$ 697,216

The net benefit plan expense is included in salaries and employee benefits on the statement of operations and fund balances.

6. Trust funds:

The Commission administers and holds in trust the following funds which are not included in the Commission's financial statements:

(a) Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund and Southern Boundary and Transboundary River Restoration and Enhancement Trust Fund:

Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund ("Northern Fund") was created by the Governments of the United States of America and Canada to manage their interests in the Commission to promote cooperation in the management, research and enhancement of Pacific Salmon stocks. The Northern Boundary is a non-taxable organization under the Foreign Missions and International Organizations Act (1991) and is not subject to income tax. The income earned on these contributions is distributed by the Commission staff as directed by the Northern Fund Committee.

Southern Boundary and Transboundary River Restoration and Enhancement Trust Fund ("Southern Fund") was created by the Governments of the United States of America and Canada to manage their interests in the Commission to promote cooperation in the management, research, and enhancement of Pacific Salmon stocks. The Southern Boundary is defined as a non-taxable organization under the Foreign Missions and International Organizations Act (1991) and is not subject to income tax. The income earned on these contributions is distributed by the Commission staff as directed by the Southern Fund Committee.

6. **Trust funds (continued):**

(a) Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund and Southern Boundary and Transboundary River Restoration and Enhancement Trust Fund (continued):

During the fiscal year ended March 31, 2014, the Commission received funding for projects from the Northern Fund and Southern Fund totaling $2,133,619 (2013 - $2,074,543). As at March 31, 2014, the Commission had a receivable from the Northern Fund and Southern Fund of $166,713 (2013 - $24,394).

(b) Payroll Trust Funds:

The Commission administers and holds trust funds on behalf of the Government of the United States to distribute U.S. section salary under a Memorandum of Understanding. These amounts have been excluded from the statement of financial position and statement of operations and fund balances of the Commission.

(c) U.S. Expenditures Trust Funds:

The Commission administers and holds trust funds on behalf of the Government of the United States of America. They are to be expended at the direction of the Government of the United States of America. These amounts have been excluded from the statements of financial position and statement of operations and fund balances of the Commission.

(d) Yukon River Fund:

Under the terms of an interim Yukon River Salmon Agreement in 1995, the United States and Canada established the Yukon River Salmon Restoration and Enhancement ("R&E") Fund and the Commission created an account to hold associated monies. The R&E fund and its governing Yukon River Panel were finalized in the 2002 Yukon River Salmon Agreement and associated treaty amendments. The Commission Secretariat administers and holds R&E trust funds on behalf of the Yukon River Panel. The Yukon River Panel provides direction on how the monies are to be disbursed from the Fund. These amounts have been excluded from the statements of financial position and statement of operations and fund balances of the Commission.

During the year, the R&E Fund paid $68,443 (2013 - $66,322) to the Commission for administrative services. As at March 31, 2014, the Commission had a receivable from the R&E Fund of $522,462 (2013 - $22,233), which includes amounts originally transferred from the Yukon River Panel Society of $515,537 (2013 - nil) and $6,925 (2013 - $7,110) representing a reimbursement for expenses paid by the Commission on behalf of the R&E Fund.

6. Trust funds (continued):

(e) Summary of trust fund balances:

	Northern Fund	Southern Fund	Yukon River Fund	US Payroll Trust Funds	US Expenditure Trust Funds	Total 2014	Total 2013
Assets	$ 131,731,629	$ 107,438,748	$ 1,176,282	$ 10,054	$ 375,807	$ 240,732,520	$ 206,704,558
Liabilities	$ 234,440	$ 314,976	$ 526,616	$ 10,054	$ 375,807	$ 1,461,893	$ 983,241
Fund balances	131,497,189	107,123,772	649,666	-	-	239,270,627	205,721,317
	$ 131,731,629	$ 107,438,748	$ 1,176,282	$ 10,054	$ 375,807	$ 240,732,520	$ 206,704,558

	Northern Fund	Southern Fund	Yukon River Fund	US Payroll Trust Funds	US Expenditure Trust Funds	Total 2014	Total 2013
Fund balance, beginning of year	$ 113,013,945	$ 92,291,641	$ 415,731	$ -	$ -	$ 205,721,317	$ 192,631,241
Revenue	23,098,850	19,097,533	1,289,146	-	-	43,485,529	21,339,864
Expenses	4,615,606	4,265,402	1,055,211	-	-	9,936,219	8,249,788
	18,483,244	14,832,131	233,935	-	-	33,549,310	13,090,076
Fund balance, end of year	$ 131,497,189	$ 107,123,772	$ 649,666	$ -	$ -	$ 239,270,627	$ 205,721,317

	Northern Fund	Southern Fund	Yukon River Fund	US Payroll Trust Funds	US Expenditure Trust Funds	Total 2014	Total 2013
Cash flow provided by (used in): Operations	$ (4,345,147)	$ (3,962,161)	$ 725,633	$ -	$ -	$ (7,581,675)	$ (6,737,514)

7. Contractual obligations:

The Commission has entered into a number of project grant contracts as at March 31, 2014 for the future funding of research projects to be completed subsequent to the year-end.

These contractual obligations are funded in installments and payments are due based on conditions included in the contract being satisfied. As such, no liability has been accrued in the financial statements as the Commission is not liable until these conditions have been met.

As at March 31, 2014, the research project contractual obligations are $831,756 (2013 - $993,109).

8. Financial instruments:

(a) Credit risk:

Credit risk is the risk that a third party to a financial instrument might fail to meet its obligations under the terms of the financial instrument. For cash and accounts receivable, the Commission's credit risk is limited to the carrying value on the statement of financial position. Management does not believe that the Commission is subject to any significant concentration of credit risk.

(b) Liquidity risk:

Liquidity risk is the risk that an entity will not be able to meet its obligations associated with financial liabilities.

The Commission manages liquidity risk by maintaining adequate cash and available credit facilities with its banking provider. The Commission monitors the cash flow to ensure a sufficient continuity of funding from the Contracting Parties.

(c) Interest rate risk:

The Commission is not exposed to significant interest risk as it does not have amounts payable that are charged interest.

Appendices

Appendix A

Northern Fund Projects for 2013/2014

Northern Fund 2013 Approved Project Proposals

Description	Proponent	Org	Area **	Total CAN$	Total US$
Enhancement					
1 Lakelse Sockeye Recovery Program: Fry Outplant Project - Year 6	Miller	DFO	NBC	$ 94,000	$ 94,000
2 2013 Tatsamenie Lake Sockeye Fry Extended Rearing	Mercer	B Mercer & Assoc	TBR	$ 41,942	$ 41,942
3 Tahltan Lake Egg-take 2013	Collins	DFO	TBR	$ 80,000	$ 80,000
4 Stikine Enhancement Feasibility Study	Erhardt	TAF	TBR	$ 95,104	$ 95,104
5 Tuya smolt sampling	Frocklage	TAF	TBR	$ 13,021	$ 13,021
6 King Salmon Lake - Sockeye enhancement project	Gordon	TRTF	TBR	$ 25,588	$ 25,588
7 Tatsamenie Lake Smolt project	Mercer	B. Mercer & Assoc	TBR	$ 29,038	$ 29,038
8 2013 Tahltan Lake Sleeping Quarters Completion for Egg Take Crew Housing	Waugh	DFO	TBR	$ 30,000	$ 30,000
Habitat Restoration					
1 Lower Williams Creek Spawning Channel Feasiblity	Miller	DFO	NBC	$ 35,000	$ 35,000
2 Pre-Construction Feasibility of Chum Spawning Channel on the Kincolith River	Stewart	NLG	NBC	$ 40,000	$ 40,000
3 North Coast Restoration Project Effectiveness Monitoring	Miller	DFO	NBC	$ 60,000	$ 60,000
4 Andesite Side Channel - Chum Production Project	Hjorth	Graywolf Resource	NBC	$ 20,000	$ 20,000
Improved Information					
1 Forecasting Southeast Alaska pink salmon harvest from juvenile salmon data: extension of models	Orsi	NOAA	SEAK		$ 49,760
2 Northern Boundary Area Sockeye Salmon Genetic Stock Identification for 2013	Guyon	NOAA	SEAK		$ 180,000
3 Stikine River Code Wire Tagging Augmentation, 2013	Etherton	DFO	NBC	$ 72,400	$ 72,400
4 Taku River Coho Salmon Escapement and Smolt Tagging Augmentation	Boyce	DFO	TBR	$ 46,309	$ 46,309
5 Genetic changes associated with in-basin supplementation of a population of sockeye; Phase 3	Joyce	NOAA	SEAK		$ 39,984
6 Stock composition of Stikine and Taku inriver fisheries - sample collection	Boyce	DFO	TBR	$ 47,900	$ 47,900
7 Northern and Transboundary sockeye matched scale-tissue sampling	Reynolds	ADFG	SEAK		$ 188,596
8 Skeena River Recreational Chinook Creel Survey	English	LGL	NBC	$ 147,723	$ 147,723
9 Northern Boundary area summer chum salmon monitoring	Piston	ADFG	SEAK		$ 39,581
10 Genetic stock identification of District 106 and 108 sockeye, 2013	Gilk-Baumer	ADFG	SEAK		$ 114,150
11 Genetic stock identification of District 111 sockeye, 2013	Gilk-Baumer	ADFG	SEAK		$ 43,320
12 2013 Alsek Sockeye Run Reconstruction Using GSI	Waugh	DFO	TBR	$ 12,750	$ 12,750
13 McLoughlin Creek Enhanced Chum Assessment	Willis (Larsen)	DFO (HFN)	NBC	$ 7,570	$ 7,570
14 Southeast Alaska Chinook Salmon Stock Assessment	Jones	ADFG	SEAK		$ 160,000
15 Area 3 Wild Chum Assessment (Commercial fishery otoliths)	Davies	DFO	NBC	$ 73,310	$ 73,310
16 2013 - 2015 Stikine River Chinook Salmon Aerial Surveys	Waugh Etherton	DFO	TBR	$ 19,300	$ 19,300
17 Stock Composition of Stikine and Taku Inriver Fisheries	Etherton	DFO	TBR	$ 166,600	$ 166,600
18 Thermal Mark Reading Stations	Agler	ADFG	SEAK		$ 43,220
19 Taku River Fish Wheel Build and Repair	Andel	ADFG	TBR SEAK		$ 135,660
20 Skeena Sockeye Lakes Juvenile Sockeye Hydroacoustic Surveys	Doire	SFC	NBC	$ 60,940	$ 60,940
21 Kitwanga River Salmon Smolt Enumeration Facility Upgrades	Kingston	GFA	NBC	$ 15,000	$ 15,000
22 Sockeye Smolt Enumeration at Babine Lake	Gottesfeld	SFC	NBC	$ 151,475	$ 151,475
23 Evaluation of New Approaches to Estimate Ecstall Chum Escapement	Hawryshyn	NCFNSC	NBC	$ 29,060	$ 29,060
		2013 Total		**$ 1,414,030**	**$ 2,408,301**

Area Glossary **	
Northern BC	NBC
Southeast Alaska	SEAK
Transboundary	TBR

Appendix B

Southern Fund Projects for 2013/2014

Southern Fund 2013 Approved Project Proposals

	Description	Proponent	Org	Area **	2013 Total $ in Can$	2013 Total $ in US$
	Improved Information					
	Goal 1 - Improve the Management of Fisheries Relevant to the Pacific Salmon Treaty					
1	Calibration of Assessment Methods for Fraser Sockeye Spawning Populations Between 25K-75K	Benner	DFO	FR	$ 75,340	
2	Salmon Species Recognition with Tail-beat Frequencies from DIDSON Data (YEAR 2)	Holmes	DFO	FR	$ 52,061	
3	Joint US and CA Mixed-Stock Chum Fisheries Sampling Design	Van Will	DFO	PS, SoBC	$ 75,000	
4	Chum Salmon Southern Area Genetic Baseline Enhancement	Rawson	Tulalip Tribes	PS, JDF, SoBC		$ 75,000
5	Determining Optimum Coho Smolt Production and Spawner Abundance to Establish Benchmarks	Bocking	LGL	GB, FR	$ 68,900	
6	Fraser Pink Escapement Goals	Grant	DFO	FR	$ 25,400	
7	Estimation of near-shore salmon passage using stratified vertical sampling by DIDSON sonar	Xie	PSC	FR	$ 21,140	
8	Early marine residence timing and survival of Fraser River sockeye salmon in the Strait of Georgia	Neville	DFO	GB	$ 82,000	
9	Continuing the evaluation of abundance and stock composition of downstream migrating juvenile S	Whitehouse	DFO	FR	$ 146,349	
10	Chum Genetic and Environmental Management (ChumGEM) Model Development Phase I	Van Will	DFO	SoBC, PS	$ 75,000	
11	Coho Salmon Genetic Stock Identification using historical scale and recent fisheries samples	Candy	DFO	SoBC	$ 100,000	
	Goal 2 - Address Priority Stocks of Interest					
1	Collection of DNA Based Stock Composition Data from the WCVI Chinook Troll Fishery	Mathias	DFO	WCVI	$ 75,000	
2	South Fork Nooksack Chinook captive brood implementation	Hatfield	WDFW	PS		$ 86,127
	Goal 3 - Improve Collaboration Between the Parties, Relevant Agencies and Stakeholders					
	n/a					
	Ongoing Goal 4 - Gain Better Understanding and Incorporate Ecosystem Factors into Underlying Science and Management Processes					
1	Assessing growth of juvenile salmon in the Strait of Georgia	Beckman	NOAA	GB		$ 57,885
2	Mechanisms regulating juvenile growth and survival of Shuswap Lake sockeye salmon	Selbie	DFO	FR	$ 49,900	
					Total expenditures in US $	**$1,065,102**

Area Glossary **

Area	Code
Columbia River watershed	CR
Fraser River watershed	FR
Geogia Basin	GB
Juan de Fuca Strait	JDF
Oregon	OR
Pacific Northwest (all SEF areas)	PNW
Puget Sound	PS
Southern BC	SoBC
Washington Coast	WC
West Coast Vancouver Island	WCVI

Appendix C

Appointment of Officers for 2013/2014

Effective December 1, 2013 a new slate of officers for the Pacific Salmon Commission was identified as follows:

OFFICE	COUNTRY	REPRESENTATIVE
Commission Chair	U.S.	Bob Turner
Commission Vice-Chair	Can.	Susan Farlinger
Fraser River Panel Chair	U.S.	Kyle Adicks
Fraser River Panel Vice-Chair	Can.	Jennifer Nener
Northern Panel Chair	U.S.	Lowell Fair
Northern Panel Vice-Chair	Can.	Mel Kotyk
Southern Panel Chair	U.S.	Terry Williams
Southern Panel Vice-Chair	Can.	Andrew Thomson
Transboundary Panel Chair	U.S.	John Clark
Transboundary Panel Vice-Chair	Can.	Steve Gotch
Stan. Comm. on F&A - Chair	U.S.	Ron Allen
Stan. Comm. on F&A - Vice-Chair	Can.	Rebecca Reid
Stan. Comm. on Scientific Cooperation - Chair	U.S.	David Hankin
Stan. Comm. on Scientific Cooperation - Vice-Chair	Can.	Carmel Lowe
Technical Committee on Data Sharing - Co-Chair	U.S.	George Nandor
Technical Committee on Data Sharing - Co-Chair	Can.	Kathryn Fraser
Fraser River Panel Technical Committee - Co-Chair	U.S.	Gary Graves
Fraser River Panel Technical Committee - Co-Chair	Can.	Ann-Marie Huang
Northern Boundary Technical Committee - Co-Chair	U.S.	Andy Piston
Northern Boundary Technical Committee - Co-Chair	Can.	David Peacock
Transboundary Technical Committee - Co-Chair	U.S.	Ed Jones
Transboundary Technical Committee - Co-Chair	Can.	Steve Smith
Enhancement Subcommittee of the Transboundary Technical Committee - Co-Chair	U.S.	Ron Josephson
Enhancement Subcommittee of the Transboundary Technical Committee - Co-Chair	Can.	Corino Salomi
Joint Technical Committee on Chinook - Co-Chair	U.S.	John Carlile
Joint Technical Committee on Chinook - Co-Chair	Can.	Gayle Brown
Joint Technical Committee on Coho - Co-Chair	U.S.	Gary Morishima
Joint Technical Committee on Coho - Co-Chair	Can.	Arlene Tomkins
Joint Technical Committee on Chum - Co-Chair	U.S.	Jay Zischke
Joint Technical Committee on Chum - Co-Chair	Can.	Pieter van Will
Joint Technical Committee on Habitat and Restoration Co-Chair	U.S.	Thom Hooper
Joint Technical Committee on Habitat and Restoration Co-Chair	Can.	TBD
Selective Fishery Evaluation Committee - Co-Chair	U.S.	Gary Morishima
Selective Fishery Evaluation Committee - Co-Chair	Can.	Rob Houtman

Appendix D

Approved Budget FY 2014/2015

PACIFIC SALMON COMMISSION

APPROVED BUDGET 2014/2015

		February 2014
1	INCOME	
A.	Contribution from Canada	$1,879,636
B.	Contribution from U.S.	$1,879,636
	Sub total	$3,759,272
C.	Carry-over from 2013/2014	$372,640
D.	Interest	$22,000
E.	Other income	$189,400
F.	Total Income	$4,343,312
2	EXPENDITURES	
A.	1. Permanent Salaries and Benefits	$2,759,593
	2. Temporary Salaries and Benefits	$271,715
	3. Total Salaries and Benefits	$3,031,308
B.	Travel	$110,928
C.	Rents, Communications, Utilities	$114,615
D.	Printing and Publications	$9,000
E.	Contractual Services	$697,667
F.	Supplies and Materials	$53,638
		$985,848
G.	Equipment	$179,035
H.	Total Expenditures	$4,196,191
3	BALANCE (DEFICIT)	$147,121

Appendix E

Pacific Salmon Commission Secretariat Staff as of March 31, 2014

EXECUTIVE OFFICE

John Field
Executive Secretary

Teri Tarita
Records Administrator/Librarian

Kimberly Bartlett
Secretary

Vicki Ryall
Meeting Planner

Sandie Gibson
Information Technology Manager

FINANCE & ADMINISTRATION

Ilinca Manisali
Controller

Bonnie Dalziel
Accountant

Witty Lam
Accounting Assistant

Angus Mackay
Manager, Restoration & Enhancement Funds

Victor Keong
Program Assistant, Restoration & Enhancement Funds

FISHERY MANAGEMENT

Mike Lapointe
Chief Biologist

Catherine Michielsens
Quantitative Scientist

Merran Hague
Quantitative Biologist

Ian Guthrie
Head, Stock Identification Group

Steve Latham
Stock Identification Biologist, Sockeye

Bruce White
Stock Identification Biologist, Pinks

Erica Jenkins
Salmon Technician

Maxine Forrest
Senior Scale Analyst

Julie Sellars
Assistant Scale Analyst

Holly Anozie
Scale Lab Assistant

Catherine Ball
Scale Lab Assistant (term)

Jim Cave
Head, Stock Monitoring Group

Keith Forrest
Test Fishing Biologist

Yunbo Xie
Hydroacoustics Scientist

Fiona Martens
Senior Hydroacoustic Technician

Jacqueline Nelitz
Hydroacoustic Technician

Mike Bartel-Sawatzky
Hydroacoustic Technician

Appendix F

Membership Lists for Standing Committees, Panels, Joint Technical Committees and other Appointments as of March 31, 2014

1. STANDING COMMITTEE ON FINANCE AND ADMINISTRATION

Ms. Allison Webb (Vice-Chair)
Mr. Randy Atwal
Ms. Susan Farlinger
Ms. Heather Wood

Mr. W. Ron Allen (Chair)
Mr. David Bedford
Mr. Roy Elicker
Ms. Natalie Howard
Mr. Mike Matylewich
Ms. Cheryl Ryder

Staff

Mr. John Field (ex. Officio)

Editorial Board

Ms. Heather Wood

Ms. Cheryl Ryder

Staff

Mr. John Field (ex. Officio)

2. FRASER PANEL

Ms. Jennifer Nener (Vice-Chair)
Mr. Chris Ashton
Mr. Mike Griswold
Chief Ken Malloway
Mr. Rob Morley
Mr. John Murray

Mr. Kyle Adicks (Chair)
Mr. Robert F. Kehoe
Ms. Lorraine Loomis
Mr. Tim Tynan

FRASER RIVER PANEL - ALTERNATES

Mr. Brent McCallum
Mr. Tony Roberts Jr.
Mr. Les Rombough
Mr. Peter Sakich
Mr. Marcel Shepert

Mr. Ronald G. Charles
Mr. Jack R. Giard
Ms. Peggy Mundy

3. SOUTHERN PANEL

Mr. Andrew Thomson (Vice-Chair)
Mr. Don Hall
Mr. Paul Kershaw
Mr. John Legate
Mr. Jeremy Maynard
Mr. Laurie Milligan

Mr. Terry R. Williams (Chair)
Ms. Susan Bishop
Mr. Burnie Bohn
Mr. John Long
Mr. Mark Newell
Mr. Joseph Oatman

SOUTHERN PANEL - ALTERNATES

Mr. Rod Cootes
Ms. Brigid Payne
Mr. Errol Sam
Ms. Marilyn Scanlan
Mr. Gord Sterritt
Mr. Phil Young

Mr. Larry Carpenter
Ms. Denise Hawkins
Mr. Edward Johnstone
Mr. Chris Kern
Mr. Joseph C. Peters
Mr. Ron Warren

4. NORTHERN PANEL

Mr. Mel Kotyk (Vice-Chair)
Mr. Chris Cue
Mr. Bill de Greef
Mr. Seigi Kriegl
Mr. Tom Protheroe
Ms. Joy Thorkelson

Mr. Gordon Williams (Chair)
Mr. Clay Bezenek
Mr. Robert D. Mecum
Mr. Howard Pendell
Mr. Russell Thomas
Mr. Robert M. Thorstenson

NORTHERN PANEL - ALTERNATES

Mr. Ronald (George) Cuthbert
Ms. Sandra Davies
Mr. Rick Haugan
Mr. Greg Knox
Chief Harry Nyce Sr.

Mr. John Carle
Mr. Brennon Eagle
Mr. Mitchell Eide
Mr. Brian Frenette
Dr. Peter Hagen
Mr. Dennis Longstreth

5. TRANSBOUNDARY PANEL

Mr. Steve Gotch (Vice-Chair)
Ms. Cheri Frocklage
Mr. Keith Carlick
Ms. Jennifer Gould
Mr. Chris Kendel
Mr. Wolfe Riedl
Ms. Linaya Workman

Dr. John H. Clark (Chair)
Mr. James Becker
Mr. Rod Brown
Mr. Arnold Enge
Mr. Gary Gray
Dr. Peter Hagen
Ms. Dale A. Kelley

6. STANDING COMMITTEE ON SCIENTIFIC COOPERATION

Dr. Laura Richards (Vice-Chair)
Mr. Mark Saunders

Dr. David Hankin (Chair)
Mr. Alex Wertheimer

7. NORTHERN FUND COMMITTEE

Mr. Mel Kotyk (Co-Chair)
Mr. Steve Gotch
Mr. Tom Protheroe

Mr. David Bedford (Co-Chair)
Mr. William F. Auger
Mr. Robert Mecum

8. SOUTHERN FUND COMMITTEE

Mr. Andrew Thomson (Co-Chair)
Dr. Don Hall
Mr. Mike Griswold

Mr. Larry Peck (Co-Chair)
Mr. Peter Dygert
Mr. McCoy Oatman

9. JOINT TECHNICAL COMMITTEE ON CHINOOK

Mr. Chuck Parken (Co-Chair)
Mr. Richard Bailey
Dr. Gayle Brown
Ms. Sabrina Crowley
Ms. Diana Dobson
Ms. Dawn Lewis
Dr. Teresa Ryan
Dr. Antonio Velez-Espino
Mr. Ivan Winther
Mr. Howie Wright

Mr. John Carlile (Co-Chair)
Dr. Marianna Alexandersdottir
Dr. David Bernard
Dr. John H. Clark
Mr. Ethan Clemons
Mr. Tim Dalton
Ms. Danielle Evenson
Mr. Gary R. Freitag
Mr. Andrew Gray
Mr. Edgar Jones
Dr. Robert Kope
Mr. Larrie LaVoy
Ms. Marianne McClure
Mr. Peter McHugh
Mr. Scott McPherson
Dr. Gary S. Morishima
Dr. Kristen Ryding
Mr. Rishi Sharma
Ms. Pattie Skannes
Mr. William Templin
Mr. Eric Volk
Mr. Henry J. Yuen

10. JOINT TECHNICAL COMMITTEE ON COHO

Dr. Arlene Tompkins (Co-Chair)
Mr. Roger Dunlop
Mr. Nick Komick
Mr. Peter Nicklin
Ms. Lynda Ritchie
Mr. Joel Sawada

Dr. Gary S. Morishima (Co-Chair)
Ms. Carrie Cook-Tabor
Mr. Craig Foster
Mr. Jeff Haymes
Mr. Diego Holmgren
Dr. Peter W. Lawson
Mr. James F. Packer
Mr. Any Rankis
Ms. Laurie Weitkamp
Ms. Mara Zimmerman

(Northern Coho)

Dr. John H. Clark
Ms. Michele Masuda
Mr. Leon D. Shaul

11. JOINT TECHNICAL COMMITTEE ON CHUM

Mr. Pieter Van Will (Co-Chair)
Mr. John R. Candy
Ms. Kim Charlie
Ms. Marla Maxwell
Mr. Joe Tadey

Mr. Jay Zischke (Co-Chair)
Mr. Scott Bass
Mr. Bill Patton
Ms. Maureen Small
Dr. Gary Winans

12 JOINT TECHNICAL COMMITTEE ON HABITAT AND RESTORATION

Mr. Matt Foy (Co-Chair)
Mr. Allen Gottesfeld
Dr. Peter Tschaplinski
Mr. Howie Wright

Mr. Thom Hooper (Co-Chair)
Mr. Kim Jones
Mr. Jeff Nichols
Mr. Phil Roger

13. TECHNICAL COMMITTEE ON DATA SHARING

Ms. Kathryn Fraser (Co-Chair)
Ms. Cheryl Lynch
Mr. Chuck Parken

Mr. George Nandor (Co-Chair)
Mr. P. Brodie Cox
Mr. Ron Josephson
Mr. Mike Matylewich
Dr. Gary S. Morishima
Ms. Amy Seiders

Working Group on Data Standards

Ms. Kathryn Fraser
Ms. Brenda Ridgway

Mr. Timothy Frawley
Dr. H. Mark Engelking
Mr. Gilbert Lensegrav
Mr. George Nandor
Mr. Ken Phillipson

14. FRASER RIVER PANEL TECHNICAL COMMITTEE

Ms. Ann-Marie Huang (Co-Chair)
Ms. Keri Benner
Ms. Sue Grant
Mr. Matt Mortimer
Mr. Jamie Scroggie
Mr. Mike Staley

Mr. Gary R. Graves (Co-Chair)
Mr. Aaron Dufault
Ms. Peggy Mundy

15. NORTHERN BOUNDARY TECHNICAL COMMITTEE

Mr. David Peacock (Co-Chair)
Mr. Steve Cox-Rogers
Mr. Allen Gottesfeld
Mr. Peter Hall

Mr. Andrew Piston (Co-Chair)
Ms. Michele Masuda
Mr. Bo Meredith
Ms. Sara Miller
Mr. Joe Orsi
Ms. Anne Reynolds
Mr. Eric Volk
Mr. Scott Walker

16. SELECTIVE FISHERY EVALUATION COMMITTEE

Dr. Rob Houtman (Co-Chair)
Ms. Cheryl Lynch
Mr. Joel Sawada

Dr. Gary S. Morishima (Co-Chair)
Dr. Marianna Alexandersdottir
Mr. John Carey
Ms. Carrie Cook-Tabor
Mr. Ken Johnson
Mr. Ron Josephson
Mr. Mark Kimbel
Mr. Ryan Lothrop
Ms. Marianne McClure
Mr. George Nandor
Mr. Ron Olson
Ms. Laurie Peterson
Dr. Kristen Ryding
Mr. Rishi Sharma
Ms. Michelle A. Varney

17. TRANSBOUNDARY TECHNICAL COMMITTEE

Mr. Steve Smith (Co-Chair)
Mr. Ian Boyce
Mr. Richard Erhardt
Mr. Pete Etherton
Ms. Bonnie Huebschwerlen
Mr. Bill Waugh

Mr. Scott Kelley (Co-Chair)
Mr. Jim Andel
Ms. Sara Gilk-Baumer
Ms. Julie Bednarski
Mr. David Harris
Mr. Edgar Jones
Mr. Thomas Kowalske
Mr. Phil Richards
Mr. Troy Thynes
Mr. Gordon Woods

ENHANCEMENT SUB-COMMITTEE

Mr. Corino Salomi (Co-Chair)
Dr. Kim Hyatt

Mr. Ron Josephson (Co-Chair)
Mr. John Joyce
Mr. Eric Prestegard
Mr. Garold Pryor

18. JOINT CHINOOK INTERFACE GROUP

Mr. Paul Sprout (Co-Chair)
Mr. John McCulloch
Dr. Brian E. Riddell

Mr. David Bedford (Co-Chair)
Mr. Phil Anderson
Mr. McCoy Oatman

19. NATIONAL CORRESPONDENTS

Ms. Heather Wood

Ms. Cheryl Ryder